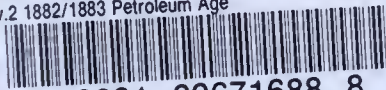


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THE
PETROLEUM AGE.

A MONTHLY MAGAZINE DEVOTED TO THE INTERESTS OF THE

PETROLEUM TRADE.

VOL. II.

DECEMBER, 1882, TO JANUARY, 1884.

BRADFORD, PA.

Mc MULLEN & SNELL, PUBLISHERS.

1884.



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THE PETROLEUM AGE.

VOL. II.

BRADFORD, PA., DECEMBER, 1882.

No. 2.

PETROLEUM.

CHAPTER XIII.

Continuation of the Tide of Operations in the Lower Country—The Butler County Excitement—Great Strife for Possession of Oil Lands—The Beginning of the Clarion Field—Interesting Reminiscences of the Butler County Development — The Great Shut Down Movement.

DURING the fall of 1871 and spring of 1872, it was difficult for an operator to determine in his own mind which direction to pursue in search of a spot on which to locate a well—St. Petersburg, Clarion county; or Martinsburg and Petrolia, Butler county. Many, in fact, divided their time and attention and capital, giving an equal share to both. The rough hill-sides skirting the Clarion river for three miles along its crooked course eastward from its junction with the Allegheny river and all along the slope to the village of St. Petersburg, a mile and a-half north of the Clarion, became the scene of great activity. While all the wells sunk in the section were not of equal capacity as regards yield, nearly all resulted satisfactorily to their owners. But few came in dry, and a large percentage yielded above 25 barrels per day each. About this time it began to be believed that there was a probability of the existence of a belt extending to the north-east some distance beyond the line that had been already tested. In this opinion Mr. M. Hulings shared. Mr. Hulings was then an operator of moderate means in the vicinity of Parker, but was possessed of an indomitable will and remarkable energy. He was the first to lead off in a test about a mile east of the village of St. Petersburg. The well was watched with great interest, and considerable land in the neighborhood was secured during its progress on option. That is, the purchasers paid a certain amount of money, cash down, and agreed for a future payment conditionally upon the completion of the well and its success. In those days "mysteries" were unknown to the trade. After a well was started its inside workings were as clear to the public as to the own-

ers. In this case it was especially so. The owners, however, were somewhat particular in securing land close to their location, though their greed was by no means what it became in later years. A hundred-acre lease was considered a fair bundle, and some actually made tests for less than half the amount. It required some effort for land owners to discard the idea that, by granting the exclusive right to search or bore for oil or other minerals on an acre patch, they could have a farm of a hundred acres or more thoroughly tested, even though the land lay several miles away from the nearest oil derrick. A firm in Philadelphia who owned a large tract, situated a few miles east of South Oil City and bounded on the north by the Allegheny river, in answer to an inquiry by an operator regarding the possibility of obtaining a lease of the land for oil purposes, proposed to be liberal with the inquirer by granting a lease of one acre. Nor was this all that this generous (?) company proposed. The proffered lease being large in its eyes, it would require a guarantee of the lessee for the fulfillment of all the obligations he might assume by signing an agreement to proceed to "operate with due diligence." The acre, it is proper to relate, remains to this day devoid of the presence of oil or anything that suggests it, even to the bunghole of a barrel of 42 gallons.

But the Hulings well was completed in due time, and resulted in an 80 barrel producer. As may be supposed, the excitement that day in St. Petersburg and vicinity was very great. Mr. Hulings lost no time in securing adjoining lands that he had failed or neglected to capture while the well was in progress, and to his effort at this particular time may be ascribed the great success that he attained in later years, mention of which will be made in future chapters. To him more than any other one man, was the credit due for the development of the Clarion field. His venturesome spirit led him long in a north-easterly direction on what was justly termed the 45 degree belt, something entirely new in this department of theoretic oil development. Prior to that time a line bearing from 21° to 22° west of south and north of east,

was strictly pursued as the only reliable oil belt. The idea of running to the east by a 45° line was not considered by the fraternity to be strictly orthodox. It proved quite correct in Clarion, however, as all the richer portions of the producing territory were found on such a course, taking the Clarion and Allegheny river, near their junction, as a base.

Leaving Clarion for a short season, we return to Butler and Armstrong, where we find early in the spring of 1872 a remarkable increase in operations. Geo. H. Dimic and Geo. Nesbit succeeded in securing a prize in the shape of a 200 barrel well on Bear Creek flats, where the village of Petrolia now stands. This was a signal for another stride to the south-west. Petrolia was laid out and named by these gentlemen and was situated squarely on the 22° line from Parker, and distant from the latter about nine miles. The intermediate section had become effectually possessed by oil men, and was being drilled with all possible dispatch. Shortly after the completion of the Dimic & Nesbit well, which occurred on June 12th. Mr. Lambing and others completed one on the Campbell farm, located also on the Bear Creek flat below Petrolia—perhaps a mile and a-half. This also resulted in a fair strike, starting at 50 barrels a day or upwards. Like a flash, the whole Bear Creek valley was illuminated by the torch of the oil operator. Derricks covered every lease attainable, and wells on the low lands were drilled on nearly every acre. The village of Argyle was “founded” during that excitement and became a small village of promise. Its close proximity to Petrolia—it being only one mile north of the latter—made its duration somewhat limited. Petrolia flourished from the day its boundaries were established and has continued one of the best inland oil towns extant. It became the centre of a large producing section, a portion of its area and environs being situated, as will be seen by reference to the interesting oil country maps printed in the AGE of August last, at the crossing of the two great belts or deposits known as the 3d and 4th sands. Of this feature a future article will treat more fully.

As a natural consequence, the haste to obtain possession of more leases and the extent of the belt, as regards diameter, being at that time entirely a question for the drill to decide some time in the future, operators seized every opportunity to acquire a hold on the lands contiguously situated on either side. This resulted in the drilling of numerous dry holes, for the 3rd

sand or regular belt covered an area in diameter of not to exceed one mile on the general average, and the wells located beyond the limits thus indicated were useful only as guides to the second crop of adventurers. It was not very difficult, however, for the average operator to locate with a fair degree of certainty, for the main portion of the belt of Butler county, though the sand was of the white species, was quite general in its average productiveness. The sand was somewhat porous, and was in no case of great thickness, being only from 15 to 25 feet at its centre. The topography of the country was quite level and the belt passed through some of the richest agricultural parts of the county. The inhabitants comprised representatives of nearly all nations, the Irish and German predominating. They were in a fairly healthy financial condition. They were frugal and, generally speaking, were enjoying the fruits of an industrious career. They were as much surprised at the sudden and valuable developments that had already occurred as the foreigner, and appeared to appreciate it less. In many cases they granted privileges which they afterwards had occasion to repent of, owing to their want of proper appreciation of the circumstances which just then surrounded and favored them. Farmers, as a rule, are easily induced by the use of money to confer favors and grant rights that are not always as favorable to themselves as they might be. Near the village of Martinsburg, a farmer in consideration of the sum of fifteen dollars, sold all the right and title that he possessed in and to a farm of 100 acres of land. The sharp land gambler had so worded the contract between them that he obtained the right to bore and mine for oil and other minerals for the space of four years, at the end of which time if he did not make certain payments he should forfeit that which he had paid. Fortunately for the farmer no oil was found on his premises, and he escaped the distress of witnessing a stranger absorbing it for his own benefit. In most cases the original owners leased their lands at an eighth royalty and a small bonus in cash. Operators at that time, notwithstanding the fact that oil commanded nearly \$4 a barrel, were apparently more particular regarding the prices paid for leases, especially when obtaining them from first hands. After the territory on the belt became thoroughly tested, however, it commanded very high prices. As much as \$5,000 bonus and one-fourth royalty was frequently paid for a five-acre lease; but these sums, it will be remem-

bered, were always asked and received by the party assuming authority acquired from the original owners.

After the great success of the Dimic & Nes-bit strike at Petrolia, operations extended to the south-west with great rapidity. The McClymonds, the Riddle and other farms along the Bear Creek valley, south of Petrolia two miles, were secured for oil purposes and constituted a site for another oil town, which received its title in honor of the lessee of the Riddle farm, Mr. S. D. Karns. This became a very lively community, and at one time during the heated race by operators to bring all the contents of the oil conglomerate to the surface in short order, fully 2,000 souls found shelter within its environs. The belt was now more than ten miles in length from Parker south-westward, and was being elongated in the opposite direction through Clarion county as rapidly as circumstances would permit. There appeared no limit to this rich territory, though in this particular the Clarion portion did not quite compare with the Butler division. It was of sufficient importance, however, when taken in connection with the latter, to cause apprehensions on the part of producers of an increase in supply of sufficient magnitude to force prices below what they considered a paying point. They were receiving through the summer months \$3.85 a barrel, but a drop of five cents a barrel caused some alarm and a shut-down began to be whispered about from ear to ear. This peculiar scheme was entitled to a place among the seven wonders of the Petroleum Age. It required about three months' agitation to bring it about, and November of 1872 was finally selected as the time. The cause of the agitation in the first place is not clear. The average price of crude oil for the year was \$3.64, the highest of any previous year from 1865 except 1867 and 1871. The latter year gave an average of \$4.35. Stocks were not increasing to any alarming extent, as the consumption for 1872 absorbed all that was produced except about 85,000 barrels, an amount equal to only a month's production at the beginning of 1882. Surely the low (?) price of \$3.75, which was paid for oil during the whole summer, could not have been great cause for grievance. But there was a reason, for the undertaking was accomplished. It was the fear of the future, perhaps, that stimulated the move. Producers have always had some *unknown* agency before their eyes that was to appear at some time in their future existence, with power to cast

some vial of wrath upon their heads. They sometimes feared the shadow of their own mental calibre, and have had solid rest at no season since the year 1871. An exception, however, should be made here, as we know of a thirty-day period that there was solid rest from labor throughout the entire length and breadth of the regions. Public meetings had been called on frequent occasions at the centres of all the principal districts, plans were adopted and representatives appointed to the general congress of producers which assembled at Oil City and which was composed of representative producers chosen by the voice of the fraternity in their respective districts. Of this congress we shall speak at greater length in a future chapter. Out of the great agitation which meant to cut off 15,000 barrels a day of production, and hold operations back for thirty days, came the unanimous shut-down commencing on the first day of November, 1872. On that memorable morning at one o'clock A. M., every walking-beam throughout the whole country, from Tidioute at the north-east, to Millerstown, Butler county, at the south-west, was brought to a rest. We say *every*, because the exceptions were so rare that they are not worthy of note. It is said that when oil men undertake to accomplish an object they go into it with all the power, might and force that they possess. It appeared so in this case, at all events, for if a walking-beam was found in motion at any time for any purpose whatever, inquiry was at once made by some one having authority, and notice was served upon the violator of the agreement that he must not repeat the act. In a few cases where proper attention was not given to these notes of warning, the party transgressing was made the subject of visitation by a group of spies, who did not hesitate to remove his machinery, haul down the smoke stack of his boiler, or do any other act which to them seemed proper. The news of these few instances spread all over the region and served as a restraining power to others. The result was, absolute quiet reigned throughout the whole land. The producing wells, as well as those drilling and rig-building, were all stopped. Not a barrel of oil, except in a few instances where wells flowed, was produced for the entire period. Every driller and tooldresser took a thirty-day leave of absence, and operators who were not compelled to remain at home for financial reasons, took occasion to enjoy a thirty-day trip somewhere. The whole oil country was out, in fact, on a thirty-day Sabbath. It had

never kept one in its history prior to that date, but it made up for some lost time. Had it observed the one day in seven and rested from its labors all the previous years, there would have been no cause for calling a halt at that time. But, it might now be asked, what were some of

THE EFFECTS

of this important move? The first was a rapid advance in the price of oil to \$5.00 a barrel. The whole world became astonished at the unanimity of feeling and interest in the matter, and began to fear that the producers of petroleum could manage their own affairs to great success at any time. Outside purchasers or dealers did not entertain such exalted opinions of the final outcome as were held by the majority of the producers. They had the foresight to behold the resurrection of the same unpleasant enemy that had threatened the trade prior to the inauguration of the shut-down movement. This was the common enemy of increased production and all kinds of business pertaining thereto. This was, in fact, the second result. The third was of a different character entirely. In this act were shown some of the selfish, if not treacherous, characteristics of the human race. A few of the leaders who, as it was afterwards shown, had taken an extraordinary interest in the welfare (?) of the producing fraternity, had actually calculated the ending from the beginning and acted strictly in accordance with their own best interest. When the advance occurred they sold out all the oil they possessed and all that they could expect to produce for the year following. They reaped important gains, therefore, while the great majority stood gazing on what they considered a great consummation, in silence. It is perhaps needless to say these "lambs were shorn." A fourth result, which was the most disastrous to some, at least, of those engaged, was the injury done to many of the producing wells. The extent of the losses sustained from this feature could never be properly estimated. Hundreds of wells that prior to the shut-down were paying large dividends monthly, were found on a renewal of the pumping business, to be entirely ruined. This was, as a rule, the case in sections only where salt water was found in the third sand rock. In many other instances wells were restored to their former condition at an enormous outlay to the owners, so that it may be said, instead of the shut-down having been a blessing to the country, it was a curse of the most blighting character. It blocked the wheels of business in every

branch of trade in the oil country and ruined scores of operators who were financially sound at the beginning of the deplorable term. It acted as an emetic to a healthy man; it stopped the wheels of progress and income, and hurried debtors on thirty days ahead of time to meet their demands; and, finally, as stated above, it gave a few power to enrich themselves at the expense of the many. The thirty-day shut down, therefore, passed into petroleum history as one of the most successful failures that occurred or was ever inaugurated by any body of sane men.

(TO BE CONTINUED.)

DEPARTMENT OF SCIENCE.

TRANSIT OF VENUS.

THE planet Venus, which all the summer had been conspicuous in the evening sky, reached her greatest distance from the sun upon the 26th of September, and returned upon her course and approached the sun again on the 6th of December, when she passed across the southern portion of the solar disk as a small, black spot, easily visible to the naked eye. The transit, as it is called, began in the neighborhood of Boston at about nine o'clock, and ended at about half-past three, within a few minutes of the time allotted by astronomers.

The interest of the event lay not very much in the phenomena presented, but mainly in the fact that transits of Venus are exceedingly rare, and that until recently they were supposed to furnish the most accurate data for determining the distance of the sun. The only transits thus far observed occurred in 1639 in 1761, and 1769, and a few years ago, in 1874. The two next transits will not take place until the years 2005 and 2013. The day was not as clear as astronomers had desired, but some very interesting and valuable data were secured, nevertheless.

WEIGHT OF WESTERN MEN AND WOMEN.—During the tenth annual Exhibition of Art and Industry in Cincinnati, which closed October 7, the department of Scientific and Educational Appliances employed a clerk to record the weights of men and women visiting the exhibit of the Howe Scale Company. There were weighed 7,467 men and 14,688 women, the men averaging 154.02 pounds and the women 130.87 pounds. The averages for 20,000 men weighed in Boston in 1864 were: for men 141½ pounds, for women 124½ pounds—or 12.52 pounds and 6.37 pounds less than the corresponding Western averages.

HISTORY AND COST OF A TUNNEL.—The recent opening of the St. Gothard Railway through the Alps has moved Consul Byers, of Zurich, to write a sketch of the great tunnel. The pass of that name is over the highest mountain chain in Europe. The *New York Times* condenses from Mr. Byers' article the following interesting facts:

The old post road, commenced in 1820, 7,000 feet above the sea in places, was $18\frac{1}{2}$ feet wide; it crossed gorges, clung dizzily to steep mountain sides, and was roofed over where most threatened by avalanches. When the first railway was opened, in 1846, from Baden to Zurich, it was proposed to ask concessions to enable the company to attack one of the high passes, and in 1863 a union or society for the purpose was effected, upon the basis of an estimated cost of \$37,400,000. In December, 1871, the St. Gothard Railway Company was organized, \$6,800,000 stock and \$13,600,000 of bonds were issued, a contract was made calling for completion in eight years, with a forfeit of \$1,000 for each additional day and a bonus of \$1,000 for each day gained upon the contract time. Work began in the summer of 1872, and it was soon discovered that the estimates were wrong, and that \$58,000,000 would be needed to carry out the plan; a crisis followed, and the enterprise seems to have been saved only by what had already been invested in it, leaving no way out but to push ahead. The railway proper extends 113 miles from Immensee, in Switzerland, to Chiasso, in Italy, and more than one-fifth of the whole line is in tunnels—fifty-six in number; many of these are not straight, but actually spiral, accomplishing heavy ascents in short distances, and there are also many lofty viaducts, bridges, and complicated galleries. The total length of tunneling is 23 miles. The main or great tunnel is $9\frac{1}{4}$ miles long, although others, exceeding 6,000 feet, might be thought noticeable elsewhere. The great tunnel is 26 feet wide and 19 high. The modern boring machines were worked by air compressed by large turbine wheels driven by the rapid river Reuss. The air was carried from the compressors outside to the borers within the tunnel in iron pipes of six inches diameter, and the escaping air served an indispensable purpose in ventilation; 3,500,000 feet of compressed air were daily thus delivered and set free, pushing back and out of the tunnel the bad natural gases, with those set free by the dynamite and thrown off from animals and workmen. Fifty drills were worked; the usual daily advance was 21 feet, working from both ends, and

the whole excavation was lined with a circular tube of masonry, 18 to 30 inches thick. The workmen were principally Italians, who worked eight hours a day, receiving 60 to \$1.20 per day, (mostly the former), boarding themselves, and living chiefly on oatmeal porridge; yet most of them are reported to have saved and sent home to their families a part of this pittance. The tunnel cost 310 of their lives, and wounds were inflicted upon 877. The final actual cost of the tunnel and railway, exclusive of rolling stock, is now reported at something over \$40,000,000.

OUR SCIENTIFIC ANCESTORS.—In a work just published on the antiquity of man M. G. de Mortillet, professor of prehistoric archæology in the anthropological school of Paris, has something to suggest on that subject. During the tertiary epoch, he tells us, there existed a creature sufficiently intelligent to make fire and fashion rude implements of stone. This creature was not yet man, however, but only an ancestral form, which Professor Mortillet designates "anthropithecus." The first man, properly so called, appeared in in Europe about 240,000 years ago, at the beginning of the quarternary epoch, and was of the type known as the Neanderthal. This type went on quietly developing during the quarternary, growing in intelligence and improving in was essentially a hunter and fisher, and knew neither agriculture nor how to domesticate animals; nor had he any "religious" ideas—though toward the end of the period he developed some artistic taste. With the beginning of the modern but still remote prehistoric epoch arrived invading hordes from Asia, who broke in upon the pure autochthonous race—conquering it, mingling with it, modifying its development, and thus originating many new ethnical varieties. Such is the latest statement on the origin and development of man in Europe, though M. de Mortillet wisely adds that "prehistoric science is entirely new and very far from having said the last word."

THE operators of Cherry Grove are still laboring under difficulties in trying to discover the proper method of extracting the oil that they are still willing to believe exists in the sand rock of that locality. The rock there is possessed of a peculiar liquid aside from the oil, that causes great trouble in pumping the wells. This liquid is of the consistency of the refuse usually found at the bottom of tanks that have stood unmo-lested for years at a stretch, and it is as black as coal tar. It is supposed to occupy a certain

space in the rock, and just where nobody has been able as yet to find out. It is this strange substance that has caused so much trouble to pumping as well as flowing wells. Benzine has been tried as an antidote, but does not possess the necessary qualifications, and there is no end to speculation as to the proper remedy for the evil. The substance has not been analyzed yet by any scientific authority, and when it is, will doubtless prove to be a species of asphaltum, which is so closely allied to petroleum in characteristics and agency. Cherry Grove operators are willing, through the AGE, to offer a reward for the best method by which the stuff can be removed, and the field is open for contestants.

industry, but essentially autochthonous with no intrusive influences to break the continuity of development. This development M. de Mortillet divides into four epochs, on the basis of the skulls and implements which have been found in various localities in France. Quarternary man

CHAS. H. MCKEE, of Lockhaven, Pa., has invented and patented a process for preventing the escape of gas from oil wells between the flows of oil. The contrivance consists of an automatic check valve placed in the tubing and operated by weights or by a spring and screw. It can be understood only by seeing or testing it. It appears to have some value and will shortly be introduced for practical purposes.

PATRICK V. DWYER, of Gloversville, N. Y., has patented a water gauge for steam boilers. It consists of a tube communicating at the upper and lower ends with the interior of the boiler, and is so constructed as to cause a whistling sound in case of danger.

FOREIGN OIL DEPARTMENT.

SOLIDIFYING PETROLEUM—DEPOSIT IN THE ARGENTINE REPUBLIC.

THAT valuable publication, *The Oil and Colourman's Journal*, of London, is at hand and as usual contains much valuable information regarding oil matters in the old world. By it we learn that a French patent has been taken out for a new process of solidifying petroleum, in which state it only burns like tallow. They effect the solidification by mixing crude petroleum (after having undergone the first distillation) with 25 per cent. of the purified juice of plants belonging to the family of the *euphorbiaceæ*. The two ingredients are put in a boiler fitted with an agitator, and heated together to about 50°, agitating the whole till the mass be-

comes a uniform milky fluid. When arrived at this state the mixture is distilled again, and refined in the ordinary manner, when it solidifies, and may be used equally well for lighting or as a lubricant.

PETROLEUM DEPOSITS IN THE ARGENTINE REPUBLIC.—In the upper provinces of the Argentine Republic there have lately been discovered petroleum deposits, apparently of great richness and extent, and it is believed that the eastern slopes of the *sierras* of the Andes are underlaid in many places with this mineral oil. One of the deposits is situated in the province of Jujuy. It consists of a lake of about eighty-eight acres in extent, and of unknown depth, and is covered with asphalt. The liquid itself is somewhat thick, of a black color, and has no disagreeable odor. Consul Baker, of Buenos Ayres, states that having obtained an analysis of the liquid, he is of opinion that the oil compares very favorably with those of Pennsylvania, Canada, Rangoon, &c. The Jujuy kerosene has the additional advantage of being without disagreeable odor, and will not ignite under 55° Cent. It is colorless, and is pronounced equal to the best that comes from the United States. Deposits of petroleum have also been recently discovered in the province of Mendoza; one of these is only a few miles southwest of the old site of the City of Mendoza, destroyed by an earthquake in 1861, and a concession has already been granted by the Government for working these deposits. According to analysis made in England, most excellent results were obtained; the yield is stated to be nearly 40 per cent. of kerosene, and what adds to the importance of the deposit, is the fact that the oil flows to the surface, and thus offers a constant supply of the crude petroleum. A similar deposit has been discovered about twelve leagues north of the present city of Mendoza. But a still more important deposit than either of these is found in the same province about eighty leagues south of Mendoza. Similar to that of Jujuy, it is an extended lake of oil, the covering also being asphalt, extending over a large surface, and affording the petroleum almost without expense in quantities which, according to reports, are almost inexhaustible. By analysis it has been found to contain almost 40 per cent. of pure oil. So great, says Consul Baker, is the appreciation of this great source of wealth to the country, that a scheme was already been proposed, and negotiations commenced, for a railway from Buenos Ayres, running through this oil region to Chili.

WHAT A FOREIGNER THINKS.—A letter appeared in a Newcastle-on-Tyne paper recently, in which the writer expressed dislike to the recent advance in the price of oil. He says: "The increase in the price of petroleum is due to an attempt on the part of an influential section of producers in America to restrict the production; but it is not likely to continue long, and with the enormous stocks that are held, the forcing up of the price to any great extent should be impossible. One of the curses of American trade is the constant attempt, by "cornering" and restricting, to drive up the price of necessities and articles similar. But as the price of gas is falling, it should be substituted for petroleum lamps, and the attempt defeated." Just so. Substituting gas for petroleum in lamps for the latter is good. Try it.

FOREST AND WARREN.

INTERESTING DETAILS OF THE MONTH'S BUSINESS
—THE RECENT STRIKES AND THEIR PROB-
ABLE EFFECTS.

SHEFFIELD, Pa., Dec. 23, 1882.—In my last epistle the Anchor well on the Cooper tract was not mentioned because it was a moderate producer and was supposed to have been shut in for the winter. It was well known that the well had not been drilled a sufficient depth into the sand to judge of its capabilities. It was expected that, like the Shannon well, half a mile to the south-west, it would be increased some by drilling deeper; but it was not supposed to be possessed of the great source of supply accorded to it about the 20th of November. It was larger when completed than even the owners expected, and was, therefore, a much better weapon in their hands for the accomplishment of the purposes for which it was opened, than they had hoped for. It was never so large as reported, however, and was about as nearly estimated by the PETROLEUM AGE as by the gauge stick of the owners. The lying reports that were circulated on its completion, were dastardly, and right here, in Sheffield, the people became boisterous and panicky over it. Those who held oil sold it without delay, and many of them actually believed that another Cherry Grove had been opened upon us. They have not been badly fooled. There has been something opened during the month contrary to the expectations of close calculators three or four months ago. It was decided at that time that a pool of greater or lesser dimensions existed in

that wilderness, but the uncertainty of obtaining paying wells, coupled with the enormous outlay incurred in sinking them, operated as a bar to the progress of work while the price of oil was below one dollar. An occasional well will pay largely, of course, but the great majority will require higher prices to let the owners out.

The Anchor people have a well near the sand and shut down, about one mile in advance of the Shannon well. It is said they do not intend to open it till spring, fearing a further extension of the field and a consequent depression of the oil market. But this is the height of folly. Every man who starts a well would do the trade and everybody else a kindness by bringing his well in as quickly as possible. Nobody of sound sense fears anything that Forest or Warren has in store. Any sane man must admit the possibility of the development of numerous spots that for a time may prove quite productive; but there the character of the oil formation is such that its *staying* qualities are exceedingly limited. It was supposed that the old wells at Clarendon would hold up for years, and that they would be more valuable in 1883 than the wells of the northern field. In this everybody has miscalculated. The old wells have gone down until even with dollar oil they are of little worth to their owners.

The same may be said of the Cherry Grove field, whose total yield at this writing is not above 1,700 a day, against about 40,000 in August last. Many of the wells are doing nothing and cannot be made to without great expense, which the owners do not seem inclined to incur at present.

Producing wells are sold in the latter portions of the field at the moderate sum of \$2,500.00 each, which includes boiler, engine and other fixtures. They are considered cheap at that, however, by those who profess to be well posted in the territory. There is a good supply of gas, which is one of the encouraging features of any section. The wells, as a rule, are good stayers when reduced to the four or five barrel average. From this the future production of the field may be quite easily estimated. There will be between 400 and 500 of them, and in the aggregate they may produce 1,500 barrels a day for half a year.

It is rather remarkable what a variety of experiences there are to relate in the treatment of these Cherry Grove wells. VanWormer and others on lot 635, cleaned out and shot one about the first of the month, and increased its

yield from 10 to about 60 barrels per day. But it was discovered that four wells surrounding him, somehow or other, ceased producing altogether about the time the shot was exploded, and refused to respond to the request of pumps or other persuasive agencies so long as the flow of gas continued at the VanWormer. Within a very short period, however, the gas at the latter began to weaken, and the oil gradually returned to the others.

The sand has ceased to trouble many of the wells by running in, and there seems but little difference between the well that was shot to death at the start and the one that died apparently of exhaustion. Both are now small, and of about equal proportions so far as yield is concerned.

It may be true that there are many spots yet to be developed along the track of the gas deposits that may produce considerable oil in this country. Doubtless this will be the case at some time in the future. There is a large area of territory lying east of Sheffield that has not been properly tested, that some day or other may show up some oil. The sand rock is known to exist, and gas in abundance. The wells that have been sunk, however, have had a tendency to discourage rather than encourage further explorations; and, until Elk county reports progress, if ever, but little will be done in that region perhaps for years.

The Morck & Shultz well, which attracted so much attention on the 7th inst., had reached the proper sand level, and may be put down as a producer of limited capacity.

The Reno Oil Company has completed a well 1,000 feet north of the Anchor Oil Co.'s masher. It is an interesting well because of its position and the territory the fate of which it properly decides. It was doing on the 23d 1,500 barrels a day.

CONGLOMERATE.

THE production of McKean county is still greater than all other fields combined.

THE well of Willetts and others, near Angelica, N. Y., may be put down as a failure.

A MAN by the euphonious title of Brown, has a mystery near Clarendon, on the Tionesta Creek.

THE Murphy well near the south-west corner of the Cooper tract, was probably plugged about the 16th inst.

CHICAGO oil men are figuring on an oil belt crossing the river from the Canadia field near Sarnia.

THEY call it "soot," the black stuff in the Cherry Grove wells that so interferes with the production of the wells.

A VERY important test well is in progress in Forest county, and but few aside from its owners are aware of its whereabouts.

JAMESTOWN has organized an oil exchange and commenced business, being guided by the Oil City market in its transactions.

THE Murphy well, from 500 to 700 feet southwest of Shannon's, on the Cooper tract, is lighter than the latter, indicating a border pillar.

THE Oil Well Packer Company, whose headquarters are at Titusville, have brought suit against a host of producers for infringement of their patents.

THERE is an elevated plateau in Forest county that resembles Cherry Grove very much, and some man without the fear of 50c oil in his eyes, has gone up there and located a well.

A WELL on lot 610, Cherry Grove, had been doing 40 barrels regularly and steady for weeks. On Tuesday last stopped flowing as suddenly as if a plug had been driven into it, and all attempts to start it up again have failed.

THE month of September, 1882, was attended by the largest transactions in the petroleum exchanges ever known in the oil trade. At Bradford the transactions amounted to 113,402,000 barrels; at Oil City, to 156,450,000; Pittsburgh, to 67,220,000, and in New York to 48,500,000 barrels.

L. EMERY, JR., & Co. have a fine brick building nearly completed on the site of their old establishment, corner Main street and Exchange place. The firm is among the most successful now engaged in the oil well supply trade, and have extensions to all important points of the Oil Regions. Square dealing has done much for the credit and trade of the firm.

J. OPPERMAN, the leading Oil Region map maker, lost some very valuable material by the great fire of Friday morning, Dec. 8th, which destroyed the Public Square block. Besides a large collection of interesting data he lost one map upon which he had labored five months steadily, having it about ready for issue. This would have been an important feature in Oil Region literature, as it was made to show the connecting link between the upper and Clarion oil fields, a collection very much needed by the oil trade.

THE REAL ESTATE MARKET.

THE buoyant feeling which prevailed during the early part of November was changed about the 20th of the same to one of deep despondency. The causes which led to this very unexpected turn in the wheel of oil region fortune are well known to the trade. It is sufficient, therefore, under this heading, to relate the circumstances which govern this branch of the business. The sales have neither been numerous nor large, for sellers and purchasers are more widely separated in their views than they have been for several months past. The difficulty suggested last month as liable to appear at any time, have been encountered, and has proved to be somewhat formidable, viz: the income of a wildcat well of unexpected capacity. The advent of the Grandin & Kelly venture at Balltown, Forest county—a well which was drilled to the sand in August last and had produced oil at the rate of 25 barrels a day more or less up to the time of drilling deeper mentioned above was the signal for a reaction in the minds of purchasers of oil property. Up to that time, as formerly stated, those who invested at the prices asked were, of course, taking chances against the developments of new and rich deposits. Holders of producing wells and productive real estate had advanced in their views of the value of their possessions even beyond the limit guaranteed by the price of production. This resulted in a diminution of the number of transactions recorded monthly and in the number of important or extremely large transfers. Nevertheless, there have occurred occasional trades throughout the whole length of the field, and at rates tolerably well elevated. It is still believed by a large majority of the trade that the territory of Forest and Warren counties is destined to be extremely short-lived, in which case all values would advance even beyond the highest point reached during the recent excitement and advance. It remains for the future to decide this question and for the property holder to justify himself in withholding or disposing of his possessions. The policy, however, of attempting to obtain all the profits there are in oil properties often causes owners serious regret.

The largest sale made during the past month was that of Shultz & Morek, of Warren to Melvin, Shannon & Co., of the well known as the Shultz & Morek on the Cooper tract together with all the leases thereto belonging. The consideration

is placed at \$40,000. Aside from this there were transactions varying from \$10,000 to \$3,000, and all footed up \$25,400, making the total for Forest of \$65,400.

In Venango county there were a few transaction, amounting to \$26,000.

Warren county reaches \$45,000, which includes a number of small sales in Clarendon and Cherry Grove.

In Allegany county, N. Y., the buyers have been quite busy, though the sales have not been either large or numerous. The border territory has been in some demand, but has recently received a set-back occasioned by some dry holes. The total sales foot up \$52,000, ranging in amount from \$3,000 to \$10,000. It was reported that Foreman had disposed of all his possessions in Allegany & Bradford for \$1,000,000, but the report was not true. There may have been some figuring, however. In the Bradford field nearly \$100,000 worth of property changed hands during the month, and there is still some inquiry.

IRON TANKAGE.

THE following is a list furnished the *Era* by the United Pipe Lines, showing the amount of iron tankage completed during November in different parts of the field. It shows that 28 tanks were completed last month, with a total capacity of 999,300 barrels. In October the same company completed 31 tanks, with a total capacity of 1,038,350. This shows a decline last month of three tanks, and a diminishing of 38,950 barrels capacity.

Location.	No.	Owner.	Capacity.
Olean	11	United	394,300
Wellsville	11	"	391,600
Colegrove	4	"	141,150
Tiona	1	"	35,850
Sheffield	1	" G. R. Wetmore	36,000
Total	28	Total	999,300

The coming month will show a still further decline in the business of tank construction. In conversation with a leading builder a few days ago, it was learned that fresh orders were extremely rare. In fact, there will be no use for more tankage unless some new field is found by the time spring opens next year. Shipments by that time will perhaps equal, if not exceed the runs.

THE Cranberry patch near Oil City does not enlarge much. There are perhaps forty other spots in Venango county that would produce more oil than Cranberry were they developed. It may require a decade, however, to bring them to the surface.

RUNS, DELIVERIES, STOCKS.

TABLE showing the November Pipe Line runs and shipments, with stocks, on November 30th, 1882—official. Each barrel 42 gallons:

DISTRICT.	RECEIPTS, Pipe.	November.	BARRELS.
Bradford	United		
Tidionte & Titusville	"		
Lower Gountry	"		
Monongahela	"		
Total			1,970,991 00
Bradford	Tidewater		197,369 36
Warren	McCalmont Storage Co.		12,213 16
Titusville	Octave Oil Co.		3,379 83
Oil City	Charley Run		370 54
Shaffer	Shaffer Run		583 00
Franklin	Franklin Pipe		8,096 05
Total all Lines			2,192,942 94
Average per day, November			73,098 09
Average per day, October			85,227 24
Average per day, September			96,079 68
Average per day, August			111,243 38
Average per day, July			95,192 11
Average per day, June			95,522 95
Average per day, May			85,563 70
Average per day, April			80,093 98
Average per day, March			83,724 96
Average per day, February			83,547 40
Average per day, January			71,855 43
<i>Deliveries.</i>			
DISTRICT.	PIPE.		
All Points	United		1,157,166 36
Warren	McCalmont St. Co.		24,869 61
Titusville	Octave Pet. Co.		3,157 23
Franklin	Franklin Pipe		10,891 74
Shaffer	Shaffer Run		95 38
Oil City	Charley Run		
Bradford	Tidewater		208,459 76
Total deliveries			1,404,640 08
Ann't of runs in excess of Shipments			788,302 86
<i>Net Stocks,</i>			
		Nov. 30.	Barrels.
Oil City	Charley Run		3,864 31
Bradford	Tidewater		2,431,621 16
All Districts	United		31,006,077 70
Shaffer	Shaffer Run		27,388 73
Warren	McCalmont Oil Co.		116,047 08
Titusville	Octave Oil Co.		5,184 01
Franklin	Franklin Pipe		14,658 37
			33,604,841 36
Total October			32,210,533 76
Total September			31,253,074 61
Total July			30,157,021 20
Total June			29,540,517 47
Total May			28,833,715 51
Total April			27,969,884 48
Total March			27,252,806 93
Total February			26,414,274 36
Total January			25,788,071 79
Increase, November			838,195 69
Increase October			556,111 91
Increase September			957,485 53
Increase, August			1,096,026 41
Increase, July			616,503 73
Increase, June			706,801 96
Increase, May			863,631 03
Increase, April			717,077 55
Increase, March			838,532 57
Average increase per day, November			18,537 06
Average increase per day, October			27,823 88
Average increase per day, September			27,874 64
Average increase per day, August			35,355 69
Average increase per day, July			19,887 21
Average increase per day, June			23,902 58
Average increase per day, May			27,859 06
Average increase per day, April			23,992 58
Average increase per day, March			27,049 44
Average increase per day, February			22,304 00
Average increase per day, January			12,174 73

THE question of substituting natural gas for petroleum for heating and lighting purposes, is being agitated considerably by outside journals. While crude oil sells in the region of one dollar a barrel, the world will be illuminated by it, and if the supply could be assured it would substitute coal in a large increase for heating before the close of 1883.

NOVEMBER OFFICIAL QUOTATIONS FOR REFINED.

THIS table gives the daily quotations for refined oil at the principal foreign as well as domestic ports:

	N. Y.	Philadelphia.	Baltim're.	London.	Bremen.	Antwerp.
	October, cts.	cts.	cts.	pence.	m'rk.	fr'cs.
1	7 $\frac{3}{4}$	7 $\frac{5}{8}$	7 $\frac{5}{8}$	6 $\frac{5}{8}$	7.25	18 $\frac{3}{8}$
2	7 $\frac{3}{4}$	7 $\frac{5}{8}$	7 $\frac{3}{4}$	6 $\frac{5}{8}$	7.35	18 $\frac{3}{8}$
3	8 $\frac{1}{8}$	8	8	6 $\frac{5}{8}$	7.55	19
4	8 $\frac{1}{8}$	8	8	6 $\frac{5}{8}$	7.55	19
5	8 $\frac{1}{8}$	8 $\frac{1}{2}$	8 $\frac{1}{2}$	7 $\frac{1}{8}$	7.55	19
6	9	8 $\frac{1}{2}$	8 $\frac{1}{2}$	6 $\frac{5}{8}$	7.55	19
7	9	8 $\frac{1}{2}$	8 $\frac{1}{2}$	6 $\frac{5}{8}$	7.55	19
8	9	8 $\frac{1}{2}$	8 $\frac{1}{2}$	6 $\frac{5}{8}$	7.55	19
9	9	8 $\frac{1}{2}$	8 $\frac{1}{2}$	6 $\frac{5}{8}$	7.55	19 $\frac{3}{4}$
10	8 $\frac{7}{8}$	8 $\frac{7}{8}$	8 $\frac{7}{8}$	6 $\frac{5}{8}$	7.55	19 $\frac{3}{4}$
11	8 $\frac{7}{8}$	8 $\frac{7}{8}$	8 $\frac{7}{8}$	7 $\frac{1}{2}$	8.20	20 $\frac{1}{2}$
12	9	8 $\frac{7}{8}$	8 $\frac{7}{8}$	7 $\frac{1}{2}$	8.20	20 $\frac{1}{2}$
13	8 $\frac{7}{8}$	8 $\frac{7}{8}$	8 $\frac{7}{8}$	7 $\frac{1}{2}$	8.20	20 $\frac{1}{2}$
14	8 $\frac{7}{8}$	8 $\frac{7}{8}$	8 $\frac{7}{8}$	7 $\frac{1}{2}$	8.00	20 $\frac{1}{2}$
15	8 $\frac{7}{8}$	8 $\frac{3}{4}$	8 $\frac{3}{4}$	7 $\frac{1}{2}$	8.00	20 $\frac{1}{2}$
16	8 $\frac{7}{8}$	8 $\frac{3}{4}$	8 $\frac{3}{4}$	7 $\frac{1}{2}$	8.00	20 $\frac{1}{2}$
17	8 $\frac{7}{8}$	8 $\frac{3}{4}$	8 $\frac{3}{4}$	7 $\frac{1}{2}$	8.00	20 $\frac{1}{2}$
18	8 $\frac{1}{2}$	8 $\frac{3}{4}$	8 $\frac{3}{4}$	7 $\frac{1}{2}$	8.00	20 $\frac{1}{2}$
20	8	7 $\frac{7}{8}$	7 $\frac{7}{8}$	7 $\frac{5}{8}$	8.00	20 $\frac{1}{2}$
21	8	7 $\frac{7}{8}$	7 $\frac{7}{8}$	7 $\frac{5}{8}$	7.50	20 $\frac{1}{2}$
22	8	7 $\frac{7}{8}$	7 $\frac{7}{8}$	7 $\frac{5}{8}$	7.50	20 $\frac{1}{2}$
23	7 $\frac{7}{8}$	7 $\frac{3}{4}$	7 $\frac{3}{4}$	7 $\frac{5}{8}$	7.50	30 $\frac{1}{4}$
24	7 $\frac{7}{8}$	7 $\frac{3}{4}$	7 $\frac{3}{4}$	7 $\frac{5}{8}$	7.50	20 $\frac{1}{2}$
25	7 $\frac{1}{2}$	7 $\frac{3}{4}$	7 $\frac{3}{4}$	7 $\frac{5}{8}$	7.50	20 $\frac{1}{2}$
27	8	7 $\frac{7}{8}$	7 $\frac{7}{8}$	7 $\frac{5}{8}$	7.50	20 $\frac{1}{2}$
28	8 $\frac{1}{8}$	7 $\frac{7}{8}$	7 $\frac{7}{8}$	7 $\frac{5}{8}$	7.50	19 $\frac{3}{4}$
29	8 $\frac{1}{8}$	7 $\frac{7}{8}$	7 $\frac{7}{8}$	7 $\frac{5}{8}$	7.50	19 $\frac{3}{4}$
30	8 $\frac{1}{8}$	7 $\frac{7}{8}$	7 $\frac{7}{8}$	7 $\frac{5}{8}$	7.50	19 $\frac{3}{4}$

NOVEMBER OFFICIAL QUOTATIONS FOR CRUDE.

THE following table shows opening, highest, lowest, and closing quotations at the Oil Exchange each day; also average for the month:

	Opening.	Highest.	Lowest.	Closing.	Avg.
1	94 $\frac{7}{8}$	95 $\frac{1}{2}$	94 $\frac{1}{8}$	95 $\frac{1}{8}$	95 $\frac{1}{4}$
2	96	97	96	97	96 $\frac{1}{2}$
3	97 $\frac{1}{2}$	1 05	97 $\frac{1}{8}$	1 04 $\frac{1}{4}$	1 01 $\frac{1}{8}$
4	1 10	1 21	1 08	1 19 $\frac{1}{2}$	1 14 $\frac{1}{2}$
6	1 30	1 34	1 23	1 25 $\frac{1}{2}$	1 18 $\frac{1}{2}$
7	1 22	1 22	1 18 $\frac{1}{2}$	1 18 $\frac{3}{4}$	1 20 $\frac{1}{4}$
8	1 17	1 20 $\frac{1}{2}$	1 14	1 14 $\frac{1}{2}$	1 17 $\frac{1}{4}$
9	1 17	1 31	1 14	1 29 $\frac{1}{2}$	1 22 $\frac{1}{2}$
10	1 36	1 36	1 24	1 24 $\frac{1}{4}$	1 30
11	1 25 $\frac{1}{2}$	1 27 $\frac{1}{2}$	1 23	1 26 $\frac{7}{8}$	1 25 $\frac{1}{4}$
13					
14	1 25 $\frac{1}{2}$	1 29	1 25 $\frac{1}{2}$	1 27	1 27 $\frac{1}{8}$
15	1 26 $\frac{3}{4}$	1 28 $\frac{3}{4}$	1 26 $\frac{3}{4}$	1 27 $\frac{3}{4}$	1 27 $\frac{3}{4}$
16	1 28	1 28 $\frac{1}{2}$	1 26	1 26	1 27 $\frac{5}{8}$
17	1 25	1 25	1 15	1 15 $\frac{1}{2}$	1 20
18	1 14	1 20	1 14	1 19	1 17
20	1 21 $\frac{1}{4}$	1 21 $\frac{1}{4}$	1 15 $\frac{1}{2}$	1 17 $\frac{1}{2}$	1 18 $\frac{5}{8}$
21	1 17	1 18	1 16 $\frac{1}{4}$	1 18	1 17 $\frac{1}{8}$
22	1 20	1 20	1 13	1 13 $\frac{1}{2}$	1 16 $\frac{1}{2}$
23	1 12	1 14	1 00	1 05	1 07
25	95	1 00 $\frac{1}{2}$	95	1 00	97 $\frac{3}{4}$
27	1 00 $\frac{1}{2}$	1 09 $\frac{3}{4}$	1 00 $\frac{1}{2}$	1 08 $\frac{3}{4}$	1 04 $\frac{3}{4}$
28	1 09 $\frac{3}{4}$	1 09 $\frac{3}{4}$	1 04 $\frac{1}{2}$	1 04 $\frac{1}{2}$	1 07 $\frac{1}{8}$
29	1 04	1 11 $\frac{1}{2}$	1 03 $\frac{1}{2}$	1 11 $\frac{1}{4}$	1 07 $\frac{1}{2}$
30 Holiday					
General Average,					1 17 $\frac{1}{8}$

THERE should be no need or lack of money in Bradford to accommodate the oil trade. Money at the great marts of the country is easy and can be had for the asking, on good collateral of course. The new exchange will not succeed as it might or as it should until banking facilities are assured. A bank with a half a million capital in connection with it would not only be a good investment of capital, but would be the crown of success to the institution.

THE WRECKED.

IF all the stories that have been related by the press and people regarding the wrecked fortunes of oil speculators during the past two months be true, oil must be a very dangerous commodity to deal in as well as to handle or kindle a fire with. From no part of the world, perhaps, have so many exaggerated reports proceeded than from the oil regions. The tale of Johnny Steele will not cease to be told while the cycles continue to measure time, and in the ages to come the story will become one of the fables of ancient "grease." The unwritten history of the memorable Pithole excitement, would alone make an interesting and extensive cyclopedia of the art and science of oil speculation. But Pithole and Johnny Steele "yarns" will shortly cease to be spun altogether, as we have some interesting fables of much more recent date that are being retold by the home firesides for the benefit of the rising generations. From these, were we to give them one-tenth of the credit the narrators seem to desire, we should be led to the conclusion that the whole of the oil region population had entered upon a 60 day spree. They relate that some men have gone clear crazy, as in the case of Mr. John Ford, of Youngsville, Warren county, Pa.; that others have committed suicide; (a charge that never will be laid up against an oilman) that women have quit the home of their care and affections and have retired to the haunts where virtue exists not; that families have been brought face to face with the awful skeleton, poverty; that children who have been accumulating pennies for the past nine months in order to be prepared for a Santa Claus entertainment have squandered all in puts and calls; that ministers of the Gospel, which restricts the laying up of treasures upon earth, have dumped their twenty years' collections; that merchants have mortgaged their establishments, for all there is in them, and have advanced the price of cotton cloth and shoddy clothing as a consequence; that laundry folks pawned the goods of their patrons for funds to make a quick turn, and lastly, that brokers have laid themselves down and have been unable to rise again, all as a result of the prevalence of the mania for speculation. It is said that an old Warren county farmer put \$2,500, the savings of a lifetime, and \$500 of borrowed money, in oil, and lost it all. A wealthy Crawford county widow, well up in years, contributed \$1,500. A Venango county belle and heiress lost her jewels and most of her wardrobe

in the shuffle, and a poor shop girl in a town of the same county, put her all, \$200, in the same whirlpool, and in her desperate endeavors to save it, sank an equal amount of her employer's money. She has fled to a house of ill-fame in Dayton, Ohio, and although her employer knows her whereabouts, he refrains from prosecution. She had been highly respected. A Clarion county lawyer and banker pooled issues on 300,000 barrels at \$1.20, but when the drop came, margined it down to seventy-five cents, and is still carrying it. A deluded young farmer's son near Edenburg, in that county, mortgaged his home to its full value, and with the proceeds and several years earnings, margined oil at \$1.25 and lost it all. A Warren, Pennsylvania, divine margined the savings of a life time amounting to about \$3,000, and it passed away as if they had been sent up in smoke. A Pittsburgh cashier invested \$100,000 of his own and his grandmother's funds, which were her only support, and she is left to the mercy of the charity of friends.

These are of course only specimens of the items that are afloat, some of which may have a sprinkling of truth, but all of which are doubtless, enormously exaggerated. It will be remembered that oil advanced in price from 50 cents a barrel to \$1.35, and on the way up many, if not all in fact, of these same persons made all during the rise that they lost on the decline. In many cases large gains were realized that were not lost, and on the whole the country is in a much more prosperous and healthy condition than it has experienced for many years, notwithstanding the nonsensical reports of enormous losses. It is true some heavy losses were sustained, but in nearly all cases the losers are still on deck, ready for another trial of their skill. One operator at Warren, Pennsylvania, by the use of \$500.00 in margins, kept doubling his purchases as the market favored him, until his profits amounted to \$52,000. Instead, however, of selling out and realizing, as he should have done, he was forced to sell during the panic, losing all he had acquired and so forth besides. He is not dead, or crazy, and it is true of many others. There will be another advance some day, and all will be happy again.

FLUCTUATIONS in the oil market have been violent and dangerous for the past two months and a change for the better cannot be looked for so long as so much uncertainty surrounds the the source of supply.

THE PETROLEUM AGE.

DEVOTED TO THE

Interests of the Petroleum Trade.

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W. J. McCULLAGH,
Editor.

A BANKRUPT law will probably be passed by the present Congress. If oil goes up where it belongs, there will be little use for it in the oil country.

SUBSCRIBERS who fail to receive the AGE regularly, should apply at once to their Postmaster. He is responsible as a rule, for its non-delivery, for in no instance is there a failure on our part to mail it properly.

DID the trade ever realize its expectations from the producing fields? It seems not. It is the unlooked-for event that always transpires. The well that is to come in large always proves to be a fizzle, and *vice versa*.

THE "balance of trade" is slowly shaping itself in favor of the U. S. again. The net excess imports this year will be only about \$6,000,000 against more than \$10,000,000 last year. Pennsylvania does about as much as any other state in the Union in the direction indicated, owing to her large oil trade abroad.

SOME attention has been given of late to the Kentucky oil field by a few of the operators of this region. Kentucky may, and doubtless will, some day become an oil field of some magnitude, but that day does not seem to be within the grasp of the near future. Transportation facilities are sadly lacking, and were they secured, the next difficulty to be encountered is whence the business to repay?

THE new test law for the sale of kerosene in the State of New York is destined to accomplish some good. A man named Nobles was arrested in Batavia last week, for violation; by selling a grade of oil that when tested stood only 50°. Search should be made back of Nobles to the manufacturer and should it be shown

that the stuff was really disposed of by him as an undertest oil, he should have a whole dose of the penalty.

THE Canadians consume about 2,000 barrels of oil a day, and the estimated production of the country is about 1,200 barrels a day. The remainder has to be imported from Pennsylvania. Of the amount, imported, however, no close calculation, can be made, for it is rumored that there are scores of "importers" who make no record of the quantities they receive from week to week. Canada will doubtless absorb nearly a million barrels of oil during the year 1883, and the United States will have a hand in supplying it.

THE AGE this month appears unusually late. This is owing to various and unavoidable causes which it is hoped will never again occur. Heretofore the magazine has been printed at Buffalo, but in order to facilitate its issue, it was decided to have it printed in Bradford. The work of procuring the necessary material, and difficulty of securing competent workmen, together with other, though minor causes combined to oppose its speedy completion. The mechanical work is now under the charge of Mr. D. W. Lerch, of this city, whose ability can be judged by this, his first effort.

THE tariff commission in the revised schedule reported to Congress, recommends that returned empty oil barrels of American manufacture be entirely free of duty, and that the filing of a declaration at the time of export, of intent to return the same empty, shall not be a restriction upon the shipper. This is a sensible idea, though of course the parties to be interested and benefitted by the adoption of these recommendations will be the shipper and refiner. It nevertheless indicates the correctness of the view of the commission upon the subject. Aside from the oil department, the work of the body is too extensive for discussion at this time.

SEVERAL important wells are soon to be added to the lists of producers in Forest county. The most interesting is the Grandon No. 2. Balltown, 30 rods north-east of No. 1, which is still yielding about 300 barrels; Reed & Brenneman's, 400 feet north of Reno; Clark & Foster, No. 2, north-east corner of the Cooper tract; Morck & Shultz, between Shannon and Reno; Short & Co. warrant, 3,142; Fertig & Henne, Enterprise lands, and J. L. McKinney & Co., Williams

lands. They may all prove good, but there are possibilities that some of them will be light. They have already done about all the injury they are capable of however, and the sooner the trade is made acquainted with facts regarding them, the better it will be for all concerned.

A Young man of Bradford purchased as his maiden attempt at speculation, one thousand barrels of oil just prior to the great panic of Nov. 21st last. He sold it, realizing \$50.00. This as a natural consequence encouraged him to make a second attempt which he did. After purchasing, a friend advised him to sell, even at a loss, as the market was undoubtedly downward bent. This he did, making a loss of \$5.00 only, leaving him \$45.00 clear. Within fifteen minutes from the close of the last transaction, the market broke all to pieces, and had the oil remained on his hands, his loss would have been five or six times the amount realized on the first trade. This so frightened him that he proceeded to the nearest clothing establishment and gave an order for a suit of clothes, and declares he will never again tackle the oil market. Boys and young men just starting in life are sadly mistaken if they imagine that because they may have been fortunate in a few chance speculations, they are destined to great wealth. The man who climbs the ladder of wealth from careful gathering and saving is the man who wins.

THE stockholders of the new exchange, who number 500 in all, met at their hall on Thursday the 14th inst., for the expressed purpose of voting upon the question of an increase of capital stock and number of shareholders. Strange as it may appear, a majority favored the shut down policy, thus not only prohibiting the admission of a few hundred substantial aspirants from among producers and others from various parts of the country, but also an enlargement of the financial foundation of the institution. It would appear, moreover, that there are selfish and narrow-minded men connected with the new as well as the old exchange, and for this cause, it is related the new was instigated. Those who voted against the proposition could have done so only on one plea, or for one reason which is given in this: that they feared a depreciation in the value of the shares held by themselves. This is horrible for an organization when effected, as alleged, for the purpose of furnishing the public with capable facilities for the transaction of its business, which were lacking

in the old mart. There is talk of repentance, however, and doubtless the increase will be made in the near future.

LAKES of petroleum, as spoken of under the heading of "Foreign Oil Department," seems rather ridiculous, notwithstanding it comes from Consul Baker. Deposits of asphalt, have existed ever since the earth assumed the crustaceous form, and beds of lava have been found at the foot of volcanos throughout all of the ages. But are we to assume that all the molten matter beneath the earth's crust is nothing more or less than petroleum, and that it can be had as freely as the water of the ocean? Preposterous! This stuff about which consuls have written of late, has been known to exist ever since the crossing of the ferry by Naoh's float. And, what's more, it has been analyzed and treated, and as far as its illuminating or lubricating qualities are concerned, it has been found to be next to worthless. Producers have all they can stand from the beds and lakes of Forest and Warren counties, and do not care to be annoyed with rumors in which there is no merit.

OIL SPECULATORS --- PANICS AND MONOPOLIES.

REASONS for the November panic have been given by the score. Combinations, corporations and the men composing them have constituted subjects of the severest censure, and every other agency made use of to produce the sad results, has been denounced by the sufferers in terms, not only severe, but extremely radical. There is an old adage that expresses something like this, "It is hard to buck against fate." It is true, in the first place, that a combination or conspiracy comprised of a few of the leading New York dealers, together with a few of the members of the Anchor Oil Company, whose headquarters may be found at Warren, Pennsylvania, was formed for the deplorable purposes attained. But, it is also true that the speculators themselves unwisely laid the trap in which they were finally caught. No person can, with good grounds, oppose the theory that a healthy speculation is beneficial in any branch of trade or commerce. The person who invests in any given commodity, with a view of an advance in its value, performs an act as justifiable in the sight of all known laws or ethics, as the person who plants or sows, with a view of reaping a harvest at some future time. But if the man

who plants or sows, proceeds to scatter more than he can ever expect to reap, or more than he has any possibility of furnishing with shelter, providing he could reap it, would be considered very unwise, or imprudent to say the least. A cursory view of the oil situation and the results of last month's transactions, presents just such characteristics as these. The speculators in oil, being altogether too sanguine of the future and desiring to reap an enormous harvest, spread their means altogether too widely. General Henry Allen used to instruct his men, in a homely adage in this wise: "Man is like pancake batter, the more he spreads the thinner he becomes." It was so with the oil speculators during the rapid rise, which occurred in November. They purchased beyond their means. They bought on as small margins as possible. Their plan was to put from \$50 to \$100 in a broker's hands for each 1,000 barrel certificate that they desired to purchase. This was actually purchasing \$1,000 worth of goods with from \$50 to \$100 cash down, and entering cheque for the balance. Of course, while the market value of an article is advancing rapidly, this is always considered a judicious and rather brilliant move. When it recedes, however, it is not so judicious or brilliant, and in no case that has yet been recorded did the value of an article of commerce ever continue to move in one direction, without breaks and set backs and serious ones too. But in the case of the speculators in oil, but few of them seem to have conceived the idea that a decline in the price, even from its highest point, was among the possibilities of the future. Like the shoddy clothing dealer, who bumped his own head against the wall for not asking another dollar for trousers, when he found the customer ready and willing to pay his price, all who did happen to sell kicked themselves for doing it, even after they had obtained a large profit, and proceeded to load up again at any price, involving all the profits they had acquired and a great deal more, and all the credit they possessed. It was this reckless greed, and dangerous ambition to become suddenly rich, that led so many people into the coils that finally broke their financial bones. Had they all been satisfied with the large profits made on their original investments, which was the case in every instance, and disposed of their bundles at the proper time, the very parties whom they now censure for the wrongs they have suffered, would probably be enjoying the pleasure of carrying the load that

was forced back upon their own (the speculators) shoulders. The speculators erected the platform, and the conspirators stepped upon it and played the part of hangman. In one sense the whole affair was a blessing to the country at large. It has taught the masses a lesson that they will not soon forget, the first of which is that they must not purchase beyond their ability to retain for months if necessary. Panics under such circumstances would be out of the question, and the power of monopoly would not and could not be exercised to the damage of any person. During the rise from 95 cents to \$1.35, almost every resident of the oil country, whether man, woman or child, who could advance the means to margin 1,000 barrels of oil or more did so, and where one could not do it two or more joined in a pool for the purpose, and all, or nearly all, seemed possessed of the same spirit—that to purchase at any price was a sure path to fortune. Their minds have changed. They have learned two things—first, that the oil market does not always go in one direction—and that upward—and second; that they must never put themselves in the power of a monopoly. The masses possess the power to blot out monopolies if exercised properly, but as this can be done only through concerted action and the courts, it is, perhaps, useless to discuss it here. Each individual, however, may care for and protect himself, in a measure, and to that end, in oil speculation especially, he must not go beyond his depth. Then if he proceeds a step to far and is launched upon a "heap" of trouble, the snarling and growling process is not indicative of great strength of character. While in the recent oil conspiracy, there is everything to condemn from a moral stand point, it is quite clear that the scheme was not beyond the limit of the law. It was a great moral wrong—a crime—for which the perpetrators will doubtless suffer in some way during their natural existence, but otherwise there is no redress. Just how men of supposed exalted character and standing in business as well as social relations, could be persuaded to engage in a conspiracy of such a nature, is one of the mysteries of the age. Unscrupulous and designing men may, will, and always have, and doubtless always will engage in them, but a person of a pure and spotless character—never.

Operations for the month of December, show a fair reduction in volume, both as regards new work and completed wells—a fair bull argument.

REPORT OF OIL OPERATIONS FOR NOVEMBER.

Wells Completed.

BRADFORD FIELD.

EAST AND WEST BRANCHES.

Lot.	Operator.	Production.
Clapp, J. M. Clapp, No. 34		20
Morris, Emery Oil Co., No. 45		10
" " " 46		12
" " " 47		10
Cary, Colosky & Caldwell		10
Minard Run tract (owners) No. 61		20
Smith, P. T. Kennedy		15
Drake, Leonard		15
Niles, Bradford Oil Co.		10
Reed,		10
Quintuple, lot 163, Cheenuing Oil Co.		15
Bingham, John McKeon		20

Wells	12
Production	167

FOSTER BROOK.

Cronan, McMurray & Co.	6
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COLE CREEK.

Bordell, Forest Oil Co., No. 29	15
Lot 492, Johnson & Union Oil Co., No. 39 b	12
492, " " " 46 b	29
439, J. L. McKinney & Co., No. 27	20
439, " " " 26	15
423, Newell & Palmer, No. 4	15

Wells	6
Production	103

OIL VALLEY.

Reid purchase, Reid & Brown	12
Keating, Forest Oil Co., No. 25	12

INDIAN CREEK.

M. Loup, Hart & Hicks, No. 22	12
L. Loup, Follett Bros., No. 16	10
Baise, Stewart & Co.	8

FOUR MILE.

Buchler, Brown Bros	12
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KINZUA.

Chapel Forks, Bradford Oil Co.	dry
Warrant 2,263, G. H. Van Vleck	25

Wells	8
Production	91
Dry	1

THE ALLEGANY FIELD.

ALMA.

Lot 18, W. T. Lewis & Co.	25
23, Duke & Norion Oil Co.	15
23, Anderson, Kauter & Co.	15
55, Torrey & Davis	dry

Wells	4
Production	55
Dry	1

EOLIVAR.

Lot 6, Wesley Chambers	10
6, McCoy & Weeter, est	15
32, C. H. Coffin	20
32, Hazlewood Oil Co., No. 24	15
32, " " " No. 27	20
37, Moran, Klengler & Co.	10
37, Mourhess Oil Co.	dry
39, Dow & Nutting	15
37, Mutual Oil Co., No. 3	12
37, J. B. Plummer	10
37, Duke, Barnsdall & Briody, No. 4	dry
37, H. J. Hickock	10
37, Chauncey Oil Co., No. 7, est	15
38, Bartlett & Foot	13
38, Williams & Curtiss, No. 5	15
38, " " " 6, est	15
38, McCalmont Oil Co.	18
38, Hanley & Co., No. 2, est	12
45, Franchot Bros. & Co., No. 6	15
45, " " " 7	15
45, " " " 4, est	15
45, Chas. Gillespie	20
45, Solldly & Sample, No. 3	15
46, T. Kervin & Co.	15
46, " " " est	20
63, Thompson & Hoover, No. 16	15
63, Columbia Oil Co., No. 8	10
64, Harrington & Ramsey	12

Wells	28
Production	377
Dry	2

WIRT.

Lot 41, Rice Oil Co., No. 4	10
41, Flannigan & Co.	15
45, Root & Dougherty	dry
56, Rice Oil Co.	dry

Wells	4
Production	23
Dry	2

GENESEE.

Lot 4, Keeny & Co.	dry
7, Dean & Merriman	15
7, McCalmont Oil Co., est	20
8, I Willets, No. 28	18
8, St. Joe Oil Co., No. 4	15
8, " " " 7	20
16, D. W. Canfield	10
16, G. S. Bussell	12
16, Pat Nolan	10
16, Chas C Cooper	12
16, A. T. Palmer	10
23, J. W. Percival, est	15
24, Capt. W. P. McCleery	20
25, Daggett Oil Co., No. 2 (Childs)	4
24, " " " 4	25
24, " " " 23, Daggett)	25
24, " " " 24	20
24, Hammond & Barton, No. 5	20
24, " " " 0	25
24, " " " 7	30
24, " " " 8	20
24, " " " 9	4
24, " " " 10, est	10
24, Book & Garland, No. 4	20
24, " " " 5	5
24, " " " 6	5
24, R. R. Armor, No. 4	12
24, " " " 5	18
24, Davis & Haldeman, No. 8	10
24, " " " 9	12
24, " " " 7	15
39, Coss Bros	10
39, Randolph Bros	10
48, Metcalf & Smith Bros	dry

Wells	34
Production	477
Dry	2

CLARKSVILLE.

Lot 10, Ege Oil Co.	10
17, Wm. Cranston	20
25, Pratt & Fink	3

SCIO.

Lot 1, York, Wright & Co., est	6
1, Nameless Oil Co., est	10

Wells	5
Production	49

WARREN AND FOREST.

CLARENDON.

Lot 498, F. Pratt & Co.	10
528, Beaumont & Drake	10
161, Helm & Co.	8
107, Sault & Dower	7
498, Conway & Gandy	15

FOREST AND SHEFFIELD.

Fox estate, Morck & Shultz	dry
Tract 4,821, Balltown Oil Co.	dry
5,211, Tionesta Oil Co.	dry
5,196, Kennedy & Co.	dry
5,214, McCuen, Berlin & Co.	dry
5,134, J. Cornwall	dry
Stewart, W. B. Ash & Co.	dry

Wells	12
Production	50
Dry	7

CHERRY GROVE.

Lot 589, Wilcox Oil Co., No. 2	10
589, " " " 3	20
589, " " " 4	5
589, " " " 5	15
590, Mahoopy Oil Co., No. 5	5
590, " " " 6	10
590, " " " 7	20
590, Brown Bros., No. 2	dry
610, Barnsdall Bros., No. 2	10
611, Forest Oil Co., No. 11	15
611, " " " 12, est	20
611, " " " 13	20
618, C. K. Book, No. 5	10
618, Conrath & Co.	5
646, George Pease	8
659, Pratt & Co.	5
671, R. E. Green, No. 17	5
672, J. C. Johnson	13
673, M. Murphy & Co.	15
680, Thompson & Potter, No. 4	15
680, W. C. Curtis	12
680, Arters & Wetmore	10
681, George Given	10
681, Greenlee & Anderson	8
681, Mead & Green	5
697, Union Oil Co., No. 1	dry
697, " " " 2	2
722, Galey Bros	dry

Wells	28
Production	273
Dry	3

LOWER OIL FIELD.

VENANGO.

Sayres, Wolf & Kugler, Galey, No. 2	25
" " " 3	dry
Fuichbaugh, Dale Bros	2
" " " Hulings & Co.	5

Brown, Roess Bros	dry
Kauffman, Geyser & Co.	5
Emlenton, E. Crawford & Bro	3

CLARION.

Richey Run, Porterfield & Co.	5
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BUTLER.

Duffy, Oak Ridge Oil Co.	dry
Wells	9
Production	45
Dry	3

DRILLING WELLS.

EAST AND WEST BRANCHES.

Lot.	Operator.	Depth.
Clapp, J. E., No. 26		600
Morris, Emery Oil Co., No. 48		drilling
" " " 49		drilling
" " " 50		drilling
" " " 2 rigs		2 rigs
Dent, P. C. L. & P. Co., No. 31		900
" " " 32		500
" " " 33		250
" " " 1 rig		1 rig
" Whitney & Wheeler, No. 19		1300
" " " 20		1000
" " " 21		450
" Goettell Bros.		rig bldg
Cary, Kolosky & Caldwell		300
Drake, W. P. Book		1000
Rogers, Harris		sand
E. Foster, Tarbell, Shafer & Co., No. 8		100
Lot 2256, R. J. Straight		rig bldg
2256, Bingham, Bayne, Fuller & Mevin		300
2256, " " " 200		200
" " " John McKeown		rig
Taylor, P. F. Karns		800
Northwestern tract, Union Oil Co. No. 18		rig
Minard Run tract, Owners		rig bldg

QUINTUPLE.

Lot 10, E. K. West	rig
25, J. S. Wilson	rig
44, J. W. Humphrey	sand
69, " " "	rig
50, B. F. Brinton	1200
175, Atwater & Co.	rig
176, H. A. Booth	rig
202, Butler & Martin	rig
203, " " "	rig
211, Gardner & Co.	rig
260, E. T. Howes	rig
223, Petrolia Oil Co.	rig

WEST BRANCH.

Mack, West Branch Oil Co.	rig
" A. F. Heald	drilling
Nile, Bradford Oil Co.	2 rigs

Rigs	22
Drilling	20

Total 42

KENDALL CREEK.

Dodge, Dodge & Clark	drilling
Storms, Wright & Sowers	rig
Moore P. C. L. & P. Co., No. 10	100
Clark, " " " 5	rig
Ledom, Robert Gregg	drilling

FOSTER BROOK.

Willets, I. Willets	rig
" " " Youngs & Willets	rig
Childs, O. A. Childs & Co.	rig
Pembroke, Pat Monroe	drilling
E. T. Co., F. W. Mitchell, No. 5	1500
C. B. & H. Seiple Bros.	rig

Rigs	6
Drillings	5

Total 11

COLE CREEK.

Lot 399, Forest Oil Co., No. 24	rig
399, " " " 28	rig
300, " " " 8	600
416, Lee & Apple, No. 8	300
416, Lee & Apple, No. 9	rig
424, Forman & Union Oil Co., No. 12	300
415, Johnson & Union Oil Co.	rig
455, Bayne, Fuller & Eelvin	rig
586, John McKeon	rig bldg

INDIAN CREEK.

Keating Forest Oil Co., No. 32	500
Reid, per Reid & Brown, No. 4	300
L. Loup, Follett Bros., No. 17	700
" " "	rig
Keyes, Indian Creek Oil Co.	rig
Loup, Keystone Gas. Co.	rig
Barse, A. D. Moulton	rig

FOUR MILE.

Widow, Carroll, Collins & Co.	1400
Stevens, J. H. Hughes	rig

KINZUA.

Bingham, Union Oil Co., No. 35	sand
" " " 36	rig
Hulings, R. J. Straight	drilling

Table Showing Total Production of Crude Petroleum in Pennsylvania and New York Oil Fields, and Consumption—From 1859 to 1881, Inclusive.

Year.	Oil Creek Division. Bbls.	Pithole District Bbls.	Tid'ute and Fagundas District Bbls.	Central All'g'ny Divis'n. Bbls.	Butler, Armstr'g & Lower Alleghany Bbls.	Clarion Division Bbls.	Bradford Division Bbls.	Bullion District Bbls.	Warr'n Div. Bbls.	Beaver Div. Bbls.	Alleg. Co., N. Y., Div. Bbls.	Yearly Total. All Districts. Bbls.	Con-sumption. Bbls.	Yearly Average Price.
1859	2000	...	...	...	...	...	...	...	...	...	...	2000	500	20.00
1860	500000	...	...	...	...	...	...	...	...	...	...	500000	300500	9.60
1861	2113609	...	...	...	...	...	...	...	...	...	...	2113609	1280000	.49
1862	3056690	...	...	...	...	...	...	...	...	...	...	3056690	1472000	1.05
1863	2611309	...	...	...	...	...	...	...	...	...	...	2611309	1992800	3.15
1864	2216109	...	...	...	...	...	...	...	...	...	...	216109	1946620	9.874
1865	1585200	912500	20500	...	...	...	...	...	...	...	...	2518200	2238610	6.59
1866	2302700	1095000	490000	...	...	...	...	...	...	...	...	3887700	2574401	3.74
1867	2393300	814000	839900	...	...	...	...	...	...	...	...	4047200	2960561	.41
1868	2672617	445500	729000	26000	...	...	...	...	...	...	...	3873117	3404645	3.624
1869	3462500	365000	535000	22500	45000	...	...	...	...	...	...	4430000	3710341	5.634
1870	2745528	173585	723838	713150	918644	...	...	...	...	...	...	5274745	4562642	3.89
1871	2040263	182054	697887	1083386	1091458	310293	...	...	...	...	...	5405341	5178038	4.34
1872	1429685	145065	847199	881140	2658080	829079	...	...	...	...	...	6790248	5954742	3.64
1873	1094389	119864	895983	851934	4402563	2526231	...	...	...	...	...	9860964	7847953	1.83
1874	734247	55770	373325	564978	5160265	3921267	...	...	...	...	...	10809852	7875145	1.17
1875	504639	35130	351407	343905	4712702	2821214	18509	...	...	...	...	8787506	9256416	1.35
1876	611884	37450	354284	333640	4755623	2377700	382768	64220	51337	...	...	8968906	10414877	2.564
1877	734858	60380	312700	474262	5431072	3021120	1465451	1306342	151371	62085	...	13019641	11977107	2.42
1878	686948	60000	308780	363710	4552815	2276408	6482400	505265	108300	92490	...	15437116	13783672	1.19
1879	389400	36500	227900	258652	2876787	1438342	14268945	289591	45550	82100	...	19913767	16851222	.854
1880	335342	36500	168542	166143	1737969	868984	22343202	146672	91655	102956	...	25997965	18228905	.944
1881	293504	31938	146474	145374	1394706	844442	22817975	128338	438000	102956	607106	26950813	21263740	.854
	34516721	4706236	7022719	6228774	38737684	21235080	67779250	2440428	886213	442587	607106	186502798	155081437	3.924

PRODUCTION TABLE.

SHOWING THE TOTAL DAILY NET YIELD OF THE PENNSYLVANIA OIL FIELD FROM SEPTEMBER, 1859, TO NOVEMBER 30th, 1882, IN BARRELS OF 42 GALLONS EACH.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals.
1859	...	...	...	...	...	...	...	...	10	15	18	28	2,173
1860	30	50	89	215	500	1,000	2,000	2,500	3,000	3,500	2,000	3,000	547,439
1861	3,201	4,041	4,800	5,400	6,000	6,100	7,100	8,500	7,000	5,150	5,514	6,716	2,119,045
1862	6,000	5,300	7,400	8,000	9,400	9,000	8,500	11,000	13,000	10,565	8,053	7,238	3,153,183
1863	6,200	6,400	7,000	5,500	6,000	7,603	7,022	8,100	9,200	7,120	9,500	10,260	2,667,543
1864	8,100	6,300	4,500	5,000	7,000	5,100	5,600	5,700	7,180	5,545	10,100	10,320	2,215,150
1865	5,900	5,800	5,000	7,500	8,000	8,000	7,400	6,350	6,400	6,800	7,600	9,350	2,560,200
1866	9,200	9,100	5,000	7,100	8,100	9,500	9,350	9,440	12,000	10,400	11,000	11,165	3,385,105
1867	10,900	8,100	9,000	10,100	10,500	9,000	10,100	10,000	10,100	7,660	9,155	8,313	3,458,113
1868	8,200	9,400	8,100	9,300	11,000	12,400	13,000	11,800	10,250	8,225	7,580	7,150	3,540,670
1869	8,100	8,500	10,000	11,000	13,000	13,000	13,560	13,000	13,500	12,500	11,200	10,625	4,186,475
1870	11,348	11,802	11,509	12,400	15,990	13,400	13,800	15,950	18,203	18,000	17,061	15,990	5,308,046
1871	13,500	13,300	13,082	12,950	13,054	13,882	14,900	15,866	15,555	15,889	15,599	15,841	5,278,072
1872	17,943	17,894	15,680	16,221	17,402	12,140	16,933	17,440	16,598	18,450	25,942	20,630	6,505,774
1873	20,550	21,460	21,830	22,260	24,632	26,361	23,400	30,900	32,500	31,343	33,584	34,680	9,849,508
1874	32,800	30,940	29,760	28,104	29,442	31,222	33,987	32,000	29,461	29,944	29,231	28,101	11,102,114
1875	27,900	26,509	26,012	23,009	23,000	23,805	24,991	23,940	23,800	23,900	23,821	23,594	8,948,749
1876	23,102	25,440	13,560	23,800	24,628	24,400	24,890	25,300	25,900	26,400	26,500	25,900	9,142,940
1877	26,930	27,560	28,860	32,060	36,000	37,440	39,210	42,100	41,321	41,200	39,900	40,120	13,230,330
1878	39,200	39,900	39,200	40,100	41,111	40,820	41,200	42,900	43,999	44,480	45,200	43,900	15,272,491
1879	44,000	43,830	47,960	50,810	52,911	55,600	56,911	59,940	61,498	60,980	58,750	58,231	19,835,903
1880	59,982	63,890	66,215	68,063	72,080	73,104	73,794	74,980	71,941	77,491	76,112	74,080	26,086,692
1881	73,030	69,060	73,900	75,245	79,000	82,460	81,900	79,100	78,231	77,971	77,892	76,642	28,136,353
1882	75,028	74,910	74,751	76,690	78,601	80,469	90,020	98,739	79,685	72,805	59,513	...	...

Total twenty-three years to December 31st, 1881, 186,532,067

THE SITUATION.

THE months of November and December will remain memorable for the violent fluctuations experienced in the crude petroleum market and for the serious losses sustained by many engaged in speculation in the article. They will also constitute a period marked with frequent surprises to the trade; as much so perhaps as

any other witnessed for years past, if we except Cherry Grove. The well of the Anchor Oil Co. which came in about the 20th of November, on the Cooper tract, Forest county, and which aided so largely in depressing values, was an important venture and one that surprised not only the owners, but the whole oil fraternity. It started at the rate of 700 barrels a day, but declined

quite rapidly and is doing now, December 25th, about 100 barrels. This well being so much larger than any that preceded it in that section, it had a strong tendency to shake the confidence of those who believed in higher prices for crude; it was reasonable that it should. But following this, early in December, came the Grandin & Kelly well at Balltown, which started at 500 barrels or more, creating the wildest confusion among holders of oil and dealers generally. This well is still yielding 250 barrels. It was drilled to the sand in August last, and remained in that condition until the time named, when it was drilled deeper with the result stated. It had in the interim, however, produced at the rate of 40 barrels a day. The oil market, which had recovered somewhat from the effects of the Anchor strike and was apparently quite strong at \$1.08, was sent backwards by the Grandin strike in such haste that it seemed impossible to check it until 88 cents was reached. Even with this load on its back it would not down and again arose to 95 cents. At this point it closed on the evening prior to the entering in of the Reno Oil Co.'s well in Warrant 2,735, northwest of the Anchor 250 rods. If the Anchor was a surprise the Reno was an astonisher. Its first day's yield is not known, as sufficient tankage was not provided. It is supposed, however, to have been over 2,000 barrels. When four days old it was still doing 1,500 barrels. This, too, in a locality that everybody considered almost entirely devoid of oil. It struck the trade like an electric shock, and sent prices reeling downward with no apparent halting place. This occurred on Wednesday, the 20th of December. Just one month from the advent of the Anchor. A new field having proportions quite uncertain was, therefore, thrown open to the consideration of a thoroughly demoralizing trade. Of course at first sight the field looked badly to the eye of him who seeth, but understandeth not. It has been shown that all of the territory of Forest and Warren counties is more or less spotted, and that these spots are liable anywhere and at any time to exhibit prolific symptoms. But as indicated by the result of Cherry Grove, they cannot be estimated by the first few days' yield of the wells. There may be an inclination, however, to underrate new spots for the same reason which might prove to be a serious matter. In the cases before us, but little can be offered in the way of correct information. The Grandin wells at Balltown denote a pool, but as to its extent it cannot be suggested at this time. Past

experience may be offered in this: that no exceedingly rich pool has ever been found to be very extensive as regards area. The oil of Balltown, Cooper tract, Blue Jay and Sheffield is of the amber species, and the amber oil field of extensive duration has yet to be discovered, unless some of those pools answer the purpose, which is not very probable, judging from the character of the wells already in. The Murphy well, a short distance southwest of Shannon, being a light producer, and the Fertig & Henne southwest of the Anchor also, would indicate that they were border wells; but just how far north of the Reno the line should be set is a question for the drill to decide. From the Fertig at the southeast, diagonally across the belt, the distance is about one mile. It would, therefore, appear that the Brenneman well, a few hundred feet north of the Reno, would approach the limit of the prolific pool on that side. From general appearance, therefore, the Cooper pool assumes a barrel shape, being somewhat swollen in the centre and narrowing down at the Shannon and the Sheffield ends. It is not so dangerous as some would appear to believe. It is not probable that another Cherry Grove will result as the character of the oil rock opposes such a conclusion. Considerable oil will be produced there, however, and the field must furnish operators during the next year with the greater portion of the drilling that will be done. It is not probable, even assuming that a few hundred wells a month during the spring season will be drilled there, that the daily production will be restored to the position occupied on the first of October last. It will require a large amount of drilling to increase the production rapidly, as the wells throughout that whole region will decline after the first fifteen days very seriously. They may rush the drill, therefore, with considerable haste, and yet there will be room made for the increase by the decline in other sections. Bradford and Allegany are going out fast. On the 20th inst. their total yield, together with all other fields, was as follows:

DISTRICT.	BARRELS.
Bradford.	37,650
Allegany.	12,800
Cherry Grove.	2,200
Forest and Warren.	4,500
Lower Country.	9,150
Total.	66,300

This is all that the Pennsylvania and New York fields were capable of yielding on the 22d of December, and on the first of January it may be calculated even lower. This is a very favorable showing in face of the fact that dry holes are being obtained in Forest and Warren, where

the territory was supposed to be rich. The Grandin No. 2, 40 rods northeast from No. 1, is supposed to be dry beyond a doubt. The Murphy is no better than a six barrel producer; the Fertig & Henne is but little better than the Murphy; the Patterson is showing for a light producer, and the Reed & Brenneman so close to the Reno, does not promise to equal the latter. From this it must be calculated that the future yield of the entire district does not promise to become of frightful proportions. The trade should, therefore, not become alarmed over an occasional large spouter. This is not the kind of territory to fear. The country and the business require some territory always to drill, and unless these two counties furnish it where is it to be found?

The exports are not as large as it was hoped they would be for the year, but reports from foreign markets are by no means discouraging. The increase in consumption is constant and must enlarge during 1883 very much.

The total exports from New York as compared with last year appears as follows to December 22:

1881—GALLONS. 364,790,517	1882—GALLONS. 361,684,703
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And from the United States to December 1st, 1882, as follows:

1881—GALLONS. 401,071,426	1882—GALLONS. 479,589,981
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A healthy business is therefore promised for 1883, and much better prices than prevailed for the past year.

THE ALLEGANY FIELD.

TABLE SHOWING THE PROGRESS OF DEVELOPMENTS AND PRODUCTION OF THE ALLEGANY (N. Y.) OIL FIELD.

MONTH.	No. of wells completed.	Dry.	Production, bbls., of new wells.	Average per well.	Average daily Production of Field, Bbls.	Drilling.	Rigs.	Stocks in wooden tanks, Bbls.	Stocks in Iron tanks, Bbls.
Total, 1880	8	42	76	9½	76	4	6	...	...
Jan'y, '81,	4	2	18	9	94	4	5	...	...
February	4	1	24	6	112	4	8	...	...
March	5	2	60	12	162	4	7	...	...
April	3	1	20	10	170	5	6	...	...
May	4	1	48	12	212	20	21	...	...
June	14	8	130	9¼	327	24	35	...	...
July	22	5	275	12½	588	47	57	...	...
August	53	17	580	11	1080	62	68	...	...
September	63	11	910	14½	1740	105	118	...	...
October	96	5	1132	15	2896	164	198	38000	108891
November	154	10	273	17½	5180	155	200	84666	142216
December	196	2	311	26½	8937	187	204	180200	169250
Jan. 31, '82,	16	2	3914	24½	11123	191	209	270860	243147
Feb. 28th	189	4	4154	21.97	13200	212	201	373460	258247
March 31st	216	2	5580	25.83	16000	215	221	374490	359347
April 30th	257	6	6356	24¼	20760	226	230	400000	417347
May	265	7	5992	22¾	22438	179	191	440000	542347
June	163	11	3605	12	22220	94	153	475000	650000
July	81	1	1488	18½	19391	45	123	375000	550000
August	60	6	1199	20	17650	34	98	295927	550000
September	29	3	435	15	16320	39	58	275610	540000
October	45	3	660	4½	14802	70	51	...	...
Nov. . .	75	7	983	13½	12900	67	82	...	...

OPERATIONS in all the old fields have fallen off materially.

J. H. CONANT makes an active and useful Secretary of the new Petroleum Exchange.

CRUDE OIL MARKET.

MONTHLY AND YEARLY AVERAGE PRICE OF PIPE LINE CERTIFICATES OR CRUDE OIL AT THE WELLS, IN BARRELS OF 42 GALLONS EACH.

A. D.	Jan. Ave'age	Feb. Ave'age	March Ave'age	April Ave'age	May Ave'age	June Ave'age	July Ave'age	Aug. Ave'age	Sept. Ave'age	Oct. Ave'age	Nov. Ave'age	D'emb'r Ave'age	Yearly Av'ges.
1859. . . . .	...	...	...	...	...	...	...	...	20.00	20.00	20.00	20.00	20.
1860.	19.25	18.00	12.62½	11.00	10.00	9.50	8.62½	7.50	6.62½	5.50	2.75	2.75	9.
1861.	1.00	1.00	1.00	.62½	.50	.50	.50	.25	.20	.10	.10	.10	.
1862. . . . .	.10	.15	.22½	.50	.85	1.00	1.25	1.25	1.25	1.75	2.25	2.25	1.
1863.	2.25	2.50	2.62½	2.87½	2.87½	3.00	3.25	3.37½	3.50	3.75	3.85	3.95	3.
1864.	4.09	4.37½	5.50	6.56	6.87½	9.50	12.12½	10.12½	8.87½	7.75	10.00	11.00	9.15½
1865.	8.25	7.50	6.00	6.00	7.37½	5.62½	5.12½	4.62½	6.75	8.12½	7.25	6.50	6.87
1866.	4.50	4.40	3.75	3.95	4.50	3.87½	3.00	3.75	4.50	3.39	3.10	2.12½	3.59
1867.	1.87½	1.85	1.75	2.07½	2.35	1.90	2.62½	3.15	3.40	3.55	2.50	1.87½	2.74
1868.	1.95	2.00	2.55	2.82	3.75	4.50	5.12½	4.57½	4.00	4.12½	3.75	4.35	3.41½
1869.	5.75	6.95	6.00	5.70½	5.35	4.95	5.37½	5.57½	5.50	5.50	5.80	5.12m	5.63¾
1870.	4.52½	4.52½	4.45	4.22½	4.40	4.17½	3.77½	3.15	3.25	3.27½	3.22½	3.40	3.89
1871.	3.82½	4.38	4.25	4.01	4.60	3.85½	4.79	4.66	4.65	4.82½	4.25	4.00	4.34
1872.	4.92½	3.80	3.72½	3.52½	3.80	3.85	3.80	3.58½	3.25	3.15	3.83½	3.32½	3.64
1873.	2.60	2.20	2.12½	2.30	2.47½	2.22½	2.00	1.42½	1.15	1.20	1.25	1.00	1.83
1874.	1.20	1.40	1.60	1.90	1.62½	1.32½	1.02½	.95	.95	.85	.55	.61½	1.17
1875.	1.03	1.52½	1.75	1.36½	1.40	1.26½	1.09	1.13	1.33	1.32½	1.44	1.55	1.35
1876.	1.80	2.00	2.01	2.02½	1.90½	2.01¾	2.04½	2.71	3.81	3.37½	3.11	3.73	2.56¼
1877.	3.53¼	2.70	2.67½	2.58	2.24	1.94¾	2.07½	2.51	2.38	2.56¾	1.91	1.80	2.42
1878.	1.43	1.65¼	1.59	1.37½	1.35¼	1.14	.98¾	1.01¾	.86½	.82½	.89¾	1.16	1.19
1879.	1.03	.98	.86¼	.78½	.76	.68¾	.69¾	.67½	.69½	.88½	1.05¾	1.18¾	.85¾
1880.	1.10¼	1.03½	.88¼	.78	.80	1.00	1.06¼	.91	.96	.96¾	.91¾	.91¾	.94½
1881. . . . .	.95½	.90¾	.83¾	.86¾	.81¾	.81¼	.76¾	.78¾	93.3-16	.94¾	.83	.84	.85¾
1882. . . . .	.83¼	.85¾	.80¾	.78½	.69¾	.5½	.56¾	.58¾	.74½	94	127½	...	...

SHIPMENTS.

Shipments of Crude and Refined, in Barrels of 42 Gallons each, reduced to Crude Equivalent out of the Producing Regions in the years named.

YEAR.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals.
1859.	.	.	.	.	.	.	.	.	.	.	500	1,200	1,700
1860.	900	1,200	2,500	4,640	11,000	21,000	58,500	64,300	79,000	78,400	63,400	38,400	423,240
1861.	54,800	49,620	68,410	95,300	184,000	189,000	200,400	210,000	263,000	184,000	70,321	75,282	1,650,133
1862.	98,212	93,101	103,762	201,430	250,320	385,211	375,440	376,311	401,210	406,500	213,611	190,463	3,141,521
1863.	171,132	104,928	148,388	288,994	450,211	428,282	213,413	281,400	398,211	406,500	281,340	206,211	3,242,951
1864.	148,324	101,431	96,486	132,486	135,218	221,386	110,490	101,218	228,430	220,386	201,441	154,765	1,842,001
1865.	121,386	94,503	103,201	122,222	140,301	338,403	184,231	115,821	231,402	228,321	215,202	204,779	2,100,132
1866.	132,200	121,320	180,206	260,231	280,320	390,260	200,410	230,210	390,431	318,616	210,016	236,701	3,010,921
1867.	123,460	125,321	165,230	250,830	300,210	300,311	210,410	260,310	384,206	300,102	280,013	132,807	2,883,210
1868.	150,220	144,201	200,410	280,430	310,408	400,046	390,402	320,210	480,306	260,240	280,200	205,377	3,482,510
1869.	200,026	190,320	240,210	260,406	340,318	400,601	310,200	250,214	450,200	480,860	280,210	249,896	3,623,521
1870.	360,933	312,910	354,400	390,003	407,908	418,516	410,707	510,079	542,217	557,624	510,780	444,254	5,235,931
1871.	437,691	347,718	383,890	389,147	587,375	501,754	541,137	528,134	551,075	505,071	480,977	410,822	5,664,791
1872.	476,966	407,606	276,220	428,512	510,417	529,228	591,238	621,931	541,607	607,468	477,940	430,786	5,899,942
1873.	573,124	527,440	668,374	708,191	708,176	696,414	814,449	864,708	952,955	1,010,852	959,589	955,443	9,499,775
1874.	843,663	501,220	518,246	803,409	899,027	815,413	940,281	793,805	1,014,570	543,341	546,117	602,348	8,821,500
1875.	435,095	327,776	693,918	729,581	681,679	745,986	904,537	882,089	1,109,392	871,917	671,066	871,902	8,924,938
1876.	677,289	519,193	623,762	603,037	646,150	921,862	1,228,530	1,203,402	1,154,549	524,190	871,496	1,190,983	10,164,443
1877.	743,461	484,904	913,919	903,526	1,234,324	1,391,124	1,096,951	1,425,943	1,563,797	1,268,971	1,205,634	600,019	12,832,578
1878.	775,791	774,234	741,512	846,636	960,894	1,135,119	1,330,454	1,635,051	1,434,225	1,747,390	1,281,410	992,688	13,476,000
1879.	663,998	702,729	973,879	1,136,188	1,331,469	1,369,314	1,625,035	1,808,238	1,627,120	1,662,269	1,453,645	1,542,585	15,806,469
1880.	1,650,409	1,395,151	1,613,371	842,268	1,095,259	975,083	1,231,611	1,304,129	1,252,635	1,665,933	1,220,030	1,335,613	15,587,447
1881.	1,061,617	915,028	1,276,740	1,348,398	1,593,436	1,729,697	1,925,532	2,214,877	2,031,950	2,080,467	2,069,641	2,014,655	20,232,038
1882.	1,817,973	1,829,779	1,729,237	1,751,294	1,843,455	2,261,172	2,239,591	2,078,903	2,003,184	2,092,094	1,406,880	.	.

THE PETROLEUM AGE has been revived and comes to us as full of valuable oil news as ever. It is still under the editorship of W. J. McCullagh. He is undoubtedly one of the best posted men in oil history now in the country, and he has the ability to analyze and digest the facts in his possession as but few writers can. He formerly collated "Babbitt's Monthly Report," which, for accuracy and completeness, was highly prized by oil men. The subscription of the AGE has been reduced to \$4.00 per annum.—*Balticr Leader.*

THE PETROLEUM AGE, a handsomely printed monthly magazine devoted exclusively to the petroleum trade, has been re-established in Bradford. It is edited by W. J. McCullagh, a well-known oil statistician formerly of the Oil City *Derrick*.—*Exchange.*

WE call attention to the advertisement on the title page of this issue. The Corry City Boiler Works have something to say of interest to the oil trade. The AGE recommends the house as one of the most substantial and reliable in the whole country.

THE Shultz well, Cooper tract, will be completed about Jan. 3. 1883. It should make a fair producer.

THE AGE looks well, though it has appeared at a late date for December. The January number will appear about the 20th.

THE Petroleum Producers' Exchange opens Jan 2, 1883, for business. Clearances will probably be light for a week.

THE Bald Ridge field is taking things easy. It never did make very much fuss, but may some day in the future enlarge somewhat.

WELLS COMPLETED.

TOTAL NUMBER OF WELLS COMPLETED EACH MONTH IN THE YEARS NAMED.

A. D.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1870	131	131	114	135	164	182	161	156	135	144	112	79	1,644
1871	98	68	70	81	95	150	139	116	125	185	161	181	1,470
1872	48	118	98	122	130	98	131	117	96	101	41	101	1,201
1873	100	105	105	110	106	180	112	116	116	111	108	95	1,364
1874	108	111	108	110	112	113	124	102	108	117	112	116	1,341
1875	184	186	194	180	169	194	208	206	208	215	213	228	2,385
1876	235	236	248	207	200	258	243	274	223	270	278	271	2,943
1877	275	249	296	264	336	598	314	254	332	460	398	391	4,167
1878	279	238	202	411	468	278	210	180	176	232	241	160	3,075
1879	144	136	221	263	395	336	335	280	269	229	225	268	3,101
1880	311	238	358	494	435	315	339	359	359	360	334	309	4,211
1881	232	218	201	310	412	371	348	335	314	302	347	405	3,795
1882	357	359	389	449	457	328	188	248	169	116	150	...	...

NOVEMBER SALES AND RUNS.

FOLLOWING is a summary of the sales of oil at the Bradford, Oil City, Pittsburg and New York Oil Exchanges during the month of November. Nothing less than 1,000 barrel certificate ever sold; each barrel represents forty-two gallons:

January, . . .	23,885,000	11,441,000	27,163,000
February, . .	19,412,000	9,153,000	22,207,000
March, . . .	27,467,000	13,208,000	29,448,000
April, . . .	22,245,000	8,325,000	19,171,000
May, . . .	39,777,000	21,814,000	38,402,000
June, . . .	29,969,000	20,417,000	38,127,000
July, . . .	48,736,000	22,040,000	31,536,000
August, . . .	34,494,000	16,140,000	50,000,000
September, .	113,402,000	67,220,000	156,450,000
October, . .	59,797,000	36,586,000	69,737,000
Nov.	105,500,000	76,000,000	164,000,000

Average runs and shipments each month of year to November 30th.

	Total Daily Runs.	Bradford Daily Runs.	Total Daily Shipm'ts.	Bradford Shipm'ts.	Char- ters.
January, . . .	70,401	62,229	55,798	40,864	33,877
February, . .	81,853	72,825	63,062	47,183	43,075
March, . . .	81,186	65,758	53,489	38,963	41,080
April, . . .	80,158	67,392	54,413	35,662	35,453
May, . . .	83,397	75,472	56,478	43,329	47,220
June, . . .	89,103	78,701	65,266	47,980	54,829
July, . . .	87,948	65,445	61,779	41,013	34,213
August, . . .	111,243	70,646	66,046	42,500	...
September, .	96,079	64,608	66,220	42,000	40,000
October, . .	85,227	...	67,132	41,000	...
Nov.	72,852	58,345	46,821	36,100	...

MR. C. L. WHEELER has no opposition for the Presidency of the Oil Exchange for the next year. Election Jan. 2, 1883.

MR. H. WILSON, of Corry, who is represented by J. M. Lambing, a pioneer oil operator, manufactures the most reliable sucker rod for oil well use of any man know to the AGE.

THE Empire Oil Refinery, in the Eighteenth Ward, Pittsburg, is running every still and turns out six hundred barrels of refined oil per day. This is anti-Standard oil for home consumption. —*Exchange.*

FOREIGN STOCKS.

GUTTENTAG'S circular of Hamburg, Germany, of Dec. 2d, states that, from Jan. 1st to November 14th the total exports from America were 443,772,724 gallons, against 430,059,898 in 1881, and 300,000,000 in 1880. Out of the total exports from America, Europe took 340,000,000 gallons. The stocks in the European ports were 2,088,856, Dec. 1st, 1882, against 1,513,559 Dec. 1st, 1881, and 1,427,206 Dec. 1880. The increase in stocks, while very large, is not as great proportionally as the increase in exports.

The trade with China is large, not only with the English, but also with American exporters.

Kerosene is rapidly assuming the greatest importance as an article of commerce between the United States and China and Japan. Statistics show 212,570 gallons consumed at Hankow, for the year 1881, as compared with 278,787 gallons for a similar period ending June 30, 1880, which indicates a falling off of 66,247 gallons in the year's import. But for the subsequent quarter ending September 30, the quantity imported was 63,270 gallons, as against 32,430 gallons for the corresponding quarter of 1880, or an increase of 30,840 gallons, nearly double, and during the first six months of 1882 the quantity received at the same place exceeded that for a like period of 1881 by 48,000. What is true of Hankow will also be true of other points when the statistics are received.

The imports of Petroleum into New Chwang, China, in 1879 were only two thousand gallons, against twelve thousand in 1881, and nearly twenty thousand in 1882.

See Plumby's Iron Tank house in this AGE.

STATEMENT made by the United Pipe Lines July 10th, 1880, and enlarged to November 30th, 1882. It gives gross stocks, sediment and surplus, net stocks, outstanding balances, receipts (or runs) from all sources, and total deliveries, or shipments :

	Gross Stocks.	Sediment and Surplus.	Net Stocks.	Outstanding Acceptances.	Credit Balances.	Receipts from all Sources.	Total Deliveries.
1877—April	1,895,153.71	77,386.70	1,817,767.01	449,640.14	1,368,126.87	200,570.81	125,797.90
May	1,762,602.64	75,363.87	1,687,237.77	663,663.71	1,003,574.06	493,200.58	619,612.26
June	1,596,367.68	81,255.42	1,488,112.26	661,786.57	826,325.69	538,906.95	737,609.77
July	1,482,433.51	81,741.50	1,400,692.01	667,166.36	733,625.65	615,145.46	699,476.18
August	1,489,052.53	81,144.63	1,407,907.90	643,281.46	704,626.44	673,403.04	666,144.28
September	1,339,032.27	67,163.68	1,271,868.59	552,676.26	719,192.33	625,225.37	769,745.57
October	1,434,728.78	46,771.99	1,387,956.79	673,850.05	714,106.74	687,094.59	570,092.71
November	1,691,399.52	39,418.00	1,651,981.52	657,591.36	994,390.16	913,644.19	649,242.70
December	2,830,413.36	68,729.63	2,761,685.73	754,338.25	2,007,347.48	1,656,150.37	506,332.99
1878—January	3,124,641.15	72,453.43	3,052,187.72	864,711.41	2,187,476.31	872,681.18	715,149.78
February	3,439,526.98	82,452.66	3,357,074.32	1,404,292.13	1,952,782.19	1,030,688.44	720,478.14
March	3,940,000.65	92,963.06	3,847,037.59	1,487,430.50	2,359,598.09	1,196,251.26	701,681.27
April	4,335,274.84	133,935.76	4,201,340.08	1,615,791.19	2,585,548.89	1,137,359.40	778,050.53
May	4,609,681.45	150,117.76	4,459,563.69	2,065,333.31	2,394,230.38	1,104,352.40	843,081.33
June	4,719,699.25	181,800.03	4,537,899.22	1,950,420.81	2,587,478.41	1,092,604.02	1,004,474.55
July	4,885,851.72	229,080.78	4,656,770.94	2,078,466.56	2,578,301.38	1,258,648.45	1,108,074.33
August	4,571,658.59	217,085.19	4,354,573.40	2,064,590.75	2,289,982.64	1,195,268.67	1,496,009.04
September	4,410,061.84	225,088.86	4,184,972.88	2,705,853.95	2,479,119.03	1,182,118.57	1,318,265.33
October	4,072,267.43	234,050.89	3,838,576.54	1,517,484.27	2,321,092.27	1,271,174.73	1,564,984.43
November	4,083,972.42	216,655.30	3,867,317.12	1,784,443.35	2,082,873.77	1,159,623.71	1,129,047.42
December	4,098,200.92	201,470.30	3,896,730.62	1,741,311.07	2,155,419.55	972,338.83	924,035.93
1879—January	4,759,031.41	182,707.80	4,576,323.61	2,153,763.83	2,422,559.78	1,231,237.19	546,271.71
February	5,157,646.15	171,689.80	4,985,956.35	2,346,238.22	2,639,718.13	1,055,377.95	643,828.74
March	5,503,768.71	190,797.91	5,312,970.80	2,484,861.83	2,828,088.87	1,303,512.17	1,029,029.70
April	5,885,675.24	211,957.06	5,673,718.18	2,644,301.36	3,029,416.82	1,379,349.76	1,015,482.04
May	6,180,843.53	315,992.98	5,864,850.55	2,522,846.36	3,342,364.19	1,488,514.31	2,228,043.27
June	6,426,802.45	334,457.29	6,092,345.16	2,959,921.12	3,132,424.04	1,437,250.90	1,204,557.54
July	6,419,699.08	323,295.32	6,096,403.76	2,323,575.29	2,772,828.47	1,472,651.01	1,465,518.05
August	6,380,606.63	300,345.15	6,078,261.48	3,581,224.03	2,497,037.45	1,714,620.11	1,728,940.81
September	6,589,859.83	325,363.85	6,264,995.98	3,783,480.38	2,481,015.60	1,691,863.41	1,455,811.45
October	6,701,209.87	299,393.67	6,401,816.20	3,788,155.65	2,613,660.55	1,646,725.06	1,502,991.20
November	6,951,133.67	303,641.17	6,647,492.50	3,927,300.18	2,675,192.32	1,600,961.29	1,328,621.19
December	7,362,409.76	294,571.37	7,067,838.39	4,235,459.40	2,832,378.99	1,771,781.24	1,331,822.12
1880—January	7,735,257.38	295,517.60	7,439,739.78	4,436,788.55	3,002,951.25	1,832,963.04	1,145,194.98
February	8,187,012.49	322,568.93	7,864,443.56	4,602,286.49	3,262,157.07	1,607,663.89	1,178,111.92
March	8,621,097.49	351,130.35	8,969,967.14	4,811,894.33	3,458,072.81	1,815,133.31	1,396,037.88
April	9,662,354.59	388,558.16	9,273,766.43	5,846,536.60	3,427,259.83	1,739,297.37	723,794.73
May	10,306,078.79	454,193.73	9,851,885.06	6,361,320.05	3,490,565.01	1,552,240.91	975,061.26
June	11,266,771.77	477,431.60	10,789,340.08	7,397,131.89	3,392,208.19	1,781,937.29	848,339.08
July	12,039,010.00	475,446.56	11,563,563.44	8,125,241.25	3,438,332.19	1,890,161.44	1,095,528.25
August	12,749,623.28	462,987.28	12,286,636.00	8,635,394.80	4,651,241.20	1,904,452.70	1,177,448.42
September	13,618,276.03	382,398.71	13,236,327.32	9,287,193.94	3,949,133.38	2,075,105.26	1,115,184.71
October	14,020,877.32	391,331.55	13,629,545.84	9,448,615.77	4,180,930.07	1,999,487.98	1,598,285.06
November	14,656,891.55	341,262.67	14,315,628.88	10,038,824.08	4,231,804.80	1,859,991.50	1,064,146.39
December	15,369,758.67	361,184.83	15,008,573.84	10,913,283.49	4,095,290.35	1,987,283.54	1,207,928.35
1881—January	16,291,307.87	360,688.98	15,930,618.89	11,672,583.61	4,258,035.28	1,876,526.50	931,818.71
February	17,355,485.31	391,616.47	16,936,868.84	12,029,594.35	4,934,274.49	1,823,713.46	781,745.93
March	18,488,476.94	432,304.19	18,056,172.75	13,099,262.44	4,956,910.31	2,222,812.39	1,116,695.11
April	19,560,752.23	517,422.38	19,043,329.85	13,846,285.20	5,197,044.65	2,182,636.96	1,183,779.02
May	20,591,177.33	640,662.03	19,950,455.30	14,608,124.70	5,342,330.60	2,278,582.78	1,356,688.23
June	21,397,698.53	756,412.85	20,641,285.68	14,738,828.77	5,902,456.91	2,318,445.18	1,545,448.13
July	21,982,161.42	774,402.94	21,207,758.48	15,150,267.23	6,057,131.25	2,396,472.50	1,756,044.15
August	22,474,105.51	800,343.43	21,673,762.18	15,240,553.15	6,433,209.03	2,527,888.69	2,013,844.67
September	22,727,740.61	820,434.43	21,907,306.18	15,626,283.11	6,281,023.07	2,233,085.37	1,900,251.83
October	23,212,951.99	801,243.43	22,431,708.56	16,408,030.46	6,023,678.10	2,452,428.66	1,803,052.62
November	23,303,782.34	746,980.08	22,556,744.26	16,407,354.48	6,149,389.78	1,995,895.38	1,742,462.86
December	23,862,966.20	775,000.00	23,087,966.20	16,496,380.40	6,234,291.37	2,255,252.50	1,696,068.64
1882—January	24,243,382.26	762,111.53	23,481,270.73	17,788,245.97	5,693,024.76	1,984,325.23	1,547,945.23
February	24,704,933.81	765,000.00	23,939,933.81	18,541,340.52	5,831,402.36	2,062,742.98	1,601,191.43
March	25,663,298.81	887,210.88	24,776,087.93	19,039,760.73	5,736,327.20	2,305,538.30	1,453,354.46
April	26,519,252.22	993,150.92	25,526,101.30	19,963,183.00	5,562,918.30	2,145,965.63	1,381,093.10
May	27,518,619.53	1161,789.36	26,356,830.17	20,622,520.38	5,734,309.79	2,339,170.39	1,496,566.23
June	28,311,328.53	1344,852.60	26,966,475.93	21,282,495.62	5,683,980.31	2,419,934.81	1,796,712.55
July	28,955,781.79	1330,493.28	27,625,288.51	22,037,273.91	5,588,015.20	2,599,606.49	1,982,695.57
August	30,198,208.64	1370,660.62	28,827,548.02	22,094,815.90	6,732,732.10	3,176,053.39	1,870,745.07
September	31,068,182.32	1473,646.07	29,594,536.25	23,824,360.13	5,770,176.12	2,569,036.25	1,799,316.21
October	31,390,694.71	981,249.05	30,409,445.66	24,031,440.00	5,647,240.00	2,369,517.35	1,834,217.13
November	31,900,475.68	894,397.98	31,006,077.70	25,722,724.08	5,283,353.62	1,970,991.00	1,157,166.56

THE PETROLEUM AGE.

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THE PETROLEUM AGE.

VOL. II.

BRADFORD, PA., JANUARY, 1883.

No. 2

PETROLEUM.

CHAPTER XIV.

Origin of the South Improvement Co.—Objects and Aims of the Institution—Arise of Producers and Refiners to Combat the Scheme—Calling of a Producers' Congress—Violent Discussions—The Railroad Rebate System—Forcing Outside Refiners—General Views of the Business of 1872 and Beginning of 1873.

WE are now in our history face to face with another enemy which had antagonized the producing interests for more than ten years. This was mentioned in our last chapter as the "South Improvement Company," and before going further it might be well enough to relate a little history which has been left untouched for this occasion:

ORIGIN OF THE SOUTH IMPROVEMENT CO.

The city of Cleveland, Ohio, early became one of the most important refining centres of America. Its shipping facilities, as well as its manufacturing privileges, exceed any other city of the country except New York. In 1864 Mr. John D. Rockefeller, now President of the Standard Oil Co., conceived the idea of shipping crude from the Pennsylvania oil region to Cleveland and refining it. He became associated, therefore, for that particular purpose, with M. P. Clark and Samuel Andrews. All, it is said, of the gentlemen were grain commission dealers prior to this new departure. Mr. Andrews being a man of some practical experience, was placed in charge of the works, which were speedily put in operation. After a time Andrews went to experimenting, and found a way by which oil could be refined better, and at less cost than by the old method. The business grew gradually, and some suggestions as to its possibilities began to dawn not only on these refining pioneers, but on other men whose minds had been turned toward the subject of oil. About this time Mr. Clark sold out. Rockefeller and Andrews went on together, expanding their business and improving it. Subsequently Mr. H. M. Flagler, the present Secretary of the Standard, was taken into partnership, and the firm became Rockefeller, An-

drews & Flagler. Clark had seen enough of the business to know there was money in it, and a new firm was formed under the name of Clark, Payne & Co., the second partner being Col. Oliver H. Payne, the present Treasurer of the Standard.

"It is not known in whose mind first dawned the possibility of the scheme which has been so successfully put in operation, but Mr. Rockefeller has always been credited with its parentage. If he did not suggest it, his was the hand that put it into execution. Clark, Payne & Co. were approached by Rockefeller, Andrews & Flagler, and the idea that soon blossomed into the Standard was unfolded. These two went in on an equal footing. This combination gave them an advantage over any other one firm, and they were not the men to throw away that advantage. The next largest Cleveland firm was approached and allowed to come in, but on terms not quite so good as the two original had given each other. The other firms were approached in turn, each one receiving less consideration than its predecessor at the hands of the then strong and determined combination. By the time the little fellows were reached the negotiation became practically a dictation. 'Here, your works are worth so much, your trade so much. We will allow you a share based thereon if you come in quietly, but if you do not agree to our terms we will probably force you.' This is what their argument amounted to, and the careful outsiders who could see danger from afar, accepted the terms and gained shelter. The foolish passed on and were punished with ruinous competition against odds that were too much for them, and under which they eventually went down. The Standard Oil Company was chartered into life and its career was thus formally opened.

"The plan of monopoly and control was continually pushed forward. The Pennsylvania Legislature was at that time, about 1871, at the summit of its unenviable fame, and things were being carried with a high hand at Harrisburg. Charters for anything and everything were passed in batches, and any man who had on hand any scheme describable or undescribable,

public or private, had only to select his charter and pay the price of those who had it for sale. President Rockefeller saw one that was indefinite enough to suit his purpose in that of the South Improvement Company, and he soon had all its vague rights and privileges in his possession. This charter granted to the applicants all the rights necessary to conduct a transporting, manufacturing, producing, purchasing, selling, and all other species of commercial affairs known to the human race. It granted the right to construct railroads, mine coal or oil, and to build ships for the commerce of the high seas. In a word, the South Improvement charter granted all the privileges that any white man could desire. The producers of oil became acquainted with this fact and, witnessing the destruction of numerous refineries which had become an established portion of the traffic of the region, a feeling of unrest began to be exhibited throughout the whole region.

Thus we have the South Improvement Co. as it appeared in 1872. It possessed a very unpleasant odor for the producer as well as the refiner, and seemed to stand as a huge monster with extended jaws ready to swallow the whole region without the process of mastication. All the important railroads leading to the outside world had been induced to enter the scheme, and for the time being, the producers and those refiners who had continued independent, found themselves entirely at the mercy of one corporation as to what they should receive for their product, or as to how and whence it should be transported. It required but little agitation to create a storm throughout the whole length and breadth of the oil region that was not abated until the nuisance as they supposed had been exterminated. Meetings were called during the spring and summer in every quarter of the oil regions, and the subject of the South Improvement Company discussed. A regular organization of producers was effected known as the "Oil Producers' Congress," which held monthly sessions at Oil City. This congress was composed of representative producers from all parts of the region as above stated. Each district had its own organization and elected its own representatives, the number being apportioned according to the importance of the district as a producing centre. The object of the congress was to devise means for the extinguishment of the great monopoly. This, it was determined, could be accomplished only in one way—by bringing sufficient influence to bear upon the railroads to

force them to annul their contracts with the South Improvement Co. This was a difficult task to accomplish, and required many months of determined resistance to the scheme and many interviews with the leaders of the great project. When first approached upon the subject, these men were very much disposed to look upon the demands of the producers in a spirit of scorn. But the excitement continued unabated for weeks. Public meetings, which were held at the principal producing centres, were largely attended, and were extremely radical in feeling and sentiment. Resolutions condemnatory of the action of the railroads in combining with the oil monopoly to the disadvantage of all who remained hostile to such proceedings were passed, and speeches of a violent character were made and heralded to all points of the country. In fact the whole region was turbulent to such an extent that the monopolists began to fear for the safety of their possessions. An outbreak of a serious character was looked for, though no such event was ever contemplated, or even suggested, by any respectable body of producers. The great difficulty which seemed to be in the way of peace was the railroad rebate, or drawback system, which gave to the Standard Oil Company an advantage over all other shippers and competitors generally. By the compact the Standard was to act as the great dispenser in the Oil Regions, distributing to each of the trunk lines its equal *pro rata* proportion of the oil that was to be removed by rail. Each road was assigned a certain percentage, according to its facilities and areal prerogative. That is, the Erie Railroad, which had direct communication with the Oil Regions through the Oil Creek road, had preference over other lines receiving oil from the north, such as the Lake Shore and New York Central. Southward the Pennsylvania Central was to be the only receiver for the east through the Allegheny Valley road. This caused some jealousy on the part of the Baltimore & Ohio system, which had large facilities for transportation to Baltimore and Philadelphia. For what reason this road was not brought into the compact has never been fully explained. Whether President Gowan did not consider the percentage offered him sufficient, or whether he stoutly from the first resisted the cause of the monopoly, has not been made clear. It is true Mr. Gowan, as President of the B. & O. for many years, contested the encroachments of the combination, and was forced to aid in the construction of a pipe line from the Butler county oil field to Monterey, a station on the Allegheny River a short distance

above Pittsburg, in order to secure a feeder from the great petroleum regions. Of this, however, we shall speak in a latter number.

As above stated, the power obtained by the S. I. Co. lay in the absolute control it received of the shipment of oil from the Oil Regions, together with the stipulation by which the railroads were to pay a rebate to the organization on every barrel of oil transported by "outside," or what was perhaps more properly called independent shippers. Through this process the odds in refining were to be largely against the independents, as the excessive freight tariff they were compelled to pay in itself constituted a large margin of profit. This going direct to the coffers of the combination proved a weapon in the hands of the latter too dangerous to withstand, and one after another of the so-called independents resigned to fate and either deserted to the enemy or fled exhausted and completely wrecked, financially. A few, however, held out firmly, and have to this day withstood all the attacks and assaults of the monopoly. Of this a future number will treat more fully. Enough is here given to show the origin and some of the aims of the South Improvement Co. It ceased to exist, however, by the railroads annulling, for the time being, the rebate contract, and the name "South Improvement Co." was lost to the country. Its aims and objects were assumed by the Standard Oil Co., and gained to the very letter. When the producers obtained from the railroads an (alleged) "recantation," they departed satisfied, and the congress was soon after adjourned *sine die*.

While the producers were thus engaged in a warfare with the great monopoly, they were also fairly active in drilling wells throughout the country. Butler county was pouring out liquid wealth in great abundance all along the course from Parker to Karns City, and operations were extending in all directions. Test wells were sunk west of Fairview by J. M. Lambing and others, which proved to be furious gas blowers. One was completed in August of '72, and tended to drive operations southward toward Millerstown. During the same fall a test well was sunk at Ralston's Mill, just north of the Troutman farm, which, during the same season, was developed by T. J. Vandegrift and Lackey & Reineman of Oil City. In the case of the Ralston's Mill well, Lambing the owner, encountered a great loss by having the tools stuck very close to the completion of the venture. Many weeks of valuable time were spent in fishing, and the result was the greater

portion of the land secured under contract, contingent upon the completion of the well within a certain time, was forfeited to the owners. While this fishing was in progress, Vandegrift and others, as above stated, completed a test well on the Troutman farm, about one mile south of Lambing, which proved one of the largest wells ever struck in the lower country. Its first day's yield exceeded 1,500 barrels, and caused an excitement in the neighborhood rarely equaled. The adjoining lands were at once picked up by speculators, and the moving masses of operators sought leases for drilling, and the greatest activity very soon prevailed. The Vandegrift well was immediately sold to Oil City and New York parties, who were represented by Joseph Seep, Esq.

About this time another fresh test was made on the Stewart farm, one mile west of Millers-town, which started at the rate of 400 barrels a day. This enlarged the prolific area to such an extent that it seemed almost limitless, and there was a regular storm of operators from the upper regions, where all drillable territory was about exhausted. Not only so, but the new field offered inducements to fresh capitalists, and hundreds of men who had never invested a dollar in an oil well prior to this date became operators, and by this the number of producers was largely increased.

While the drill kept elongating the belt southwestward through Butler county, the same was performing its functions in Clarion county. There was a wild rush for the territory northeast of the Hulings well on the Ashbaugh farm, located east of St. Petersburg, (as related in last chapter) after it was decided that Hulings had actually obtained a first-class producer. Here was opened another vast field which required years to properly define. Eastward, success attended the completion of every well as far as Turkey Run, a small stream putting out northward from the Clarion River, 4 miles from its junction with the Allegheny. Then in a northeasterly direction an unlimited stretch of undeveloped territory lay before the adventurer, and it required but a short period for many miles of it to become the tramping ground of a swarm of land-grabbers. The territory was not as productive as that of Butler county, but both together created so much room for increase of operations and production thereby that a depression in prices began and continued until 1874, the average for 1872 being \$3.64, 1873 \$1.83, and 1874 \$1.17.

DEPARTMENT OF SCIENCE.

Petroleum on Railroads—Tests, for Lubricating Oil—Petroleum Soap—A New Explosive—Gasoline Engine—Oil on the Water, etc., etc.

ATTEMPTS have been made to use coal oil or petroleum, both on railroads and ocean steamers, but thus far without success. It was hoped that oils, occupying one-tenth the bulk and space of coals, could be used on long voyages, and on railroads at great distances from coal depots. Success in this direction would indeed be a matter of great economy, since the same weight of oil would serve for ten times the distance passed over when using coal. But the theory of oil-flame did not take into consideration the diminished power of flame-heat as compared with the more intense, regular and more voluminous heat of coal, or the heat of coke, to which coal is reduced in the process of burning. The heat yielded by the different elements in burning coal is as follows: Carbon and oxygen, one proportion, gives 2,358 F. Carbon with oxygen, two proportions, gives 4,424 F. Hydrogen yields 3,745 F. Oil gas (C. H.) gives 4,162 F. In some of these combinations, where the combustion is perfect, great heat is yielded sufficient for the maintenance of steam; but the fixtures required for its regularity are incompatible with locomotive travel. When we have learned to separate the heat from the light of coal oil, or gas, on a large scale, as is now done with the common Bunsen burner, we expect better success, especially in culinary use. On the Chicago & Northwestern Railway the experiment of burning coal oil was tried under able superintendence. Trains were drawn by steam generated from oil-flame, but the fire apparatus lacked that surplus fund of heat which is absolutely necessary to the instant and vigorous action of the locomotive.

TESTS FOR LUBRICATING OILS.—It is stated that a good test for lubricating oils is to place single drops of the different kinds to be compared in line across the end of a piece of plate glass about 24 inches long, one end being 6 or 8 inches higher than the other, to form an inclined plane. The drops of oil are run down this smooth plane in a race with each other. The quality of the oils for lubricating purposes is shown by the distances traveled and the trace left by the drops. Thus, on the first day sperm oil will be found in the rear; but it will in time overtake the rest, and retain its power of motion after most other oils have dried up. A light-bodied oil flows quickly,

like water, but also dries quickly, whereas what is needed is a good body combined with a limpid flow. Many oils have a good body, but have a tendency to gum; and this will be distinctly shown upon the glass. It is scarcely necessary to remark that the test slip should be covered from dust while the experiment is being made. The above method will show the physical qualities of different descriptions of oil; but if the presence of acid is to be detected, another simple device may be adopted. In a sheet of bright copper a number of shallow pits are made by the blow of a round-faced hammer. Samples of oil left some days in these dishes on a shelf in the engine-room will show, by the formation of verdigris, where acid is present. The existence of a blue tinge of fluorescence in a glass phial of oil is frequently assumed to indicate the presence of mineral oil; but this is an illusory test, since the same effect is frequently observed in the purest and freshest vegetable oils.

PETROLEUM SOAP.—L. Bastil, a French chemist, has obtained a patent for a petroleum soap in which equal proportions of animal or vegetable fats are used with petroleum. The fatty matter is melted, and a half per cent. of boracic acid is fused into it. A similar quantity of boracic acid is in a like manner added to the mineral oil at the temperature of 90° Fahr. The chemist also dissolves a half per cent. of boracic acid in his alkaline solution. The acidified oils are mixed by gradually pouring the melted animal or vegetable fat into the mineral oil with constant stirring. The alkali containing the boracic acid is then added, still maintaining the agitation. The saponification is completed by further addition of as much ordinary alkaline solution as may be required, and finishing off in the usual manner.

THE LARGEST RAILROAD.—The Pennsylvania system, of which Mr. G. B. Roberts is President, still leads the country, 6,438 miles—and of course the world—although it is composed of several subordinate systems, each with its general officers. The Missouri Pacific system, of which Mr. Jay Gould is President, is also composed of several distinct roads and corporations—the Missouri Pacific, St. Louis, Iron Mountain & Northern, International & Great Northern, Texas & Pacific, etc., though with one set of general officers. Coming down to a single corporate organization under one title, with one list of officers for the whole system, the Chicago, Milwaukee & St. Paul takes the lead with its 4,500 miles, though several other companies are close behind.

A NEW explosion has been invented by Dr. Carl Hinley and Herr L. Von Fruttschler-Falkenstein, (no patent on this name) which is composed of a mixture of salt petre, chlorate of potash and a solid hydrocarbon, and is suitable both for mining purposes and firearms, while, if ignited in the open air, the combustion takes place slowly and imperfectly, and therefore without danger. The incorporation of the ingredients is by preference effected as follows: The salt-petre, chlorate of potash and hydrocarbon (for which may be taken paraffin, asphaltum, pitch, caoutchouc, gutta-percha, etc.,) are mixed together in pulverulent form by passing them through sieves or otherwise, and the mixture is then treated with a liquid volatile hydrocarbon, which acts as a solvent to the solid hydrocarbon. A plastic mass is thus produced, which is then formed into cakes or sheets by passing through rollers or otherwise, and is rendered hard by evaporating the liquid solvent used, the sheets or cakes so produced being then converted into grains or pieces of any desired size, in the same manner as ordinary gunpowder.

A GASOLINE ENGINE.—A petroleum motor, or rather an engine for obtaining motive power from an explosive mixture of gasoline vapor and air, has been constructed by a Hanoverian firm, and is described by Professor Schottler in the *Wochenschrift des Vereins Deutscher Ingenieure*: The working cylinder is 8 inches in diameter, with 14 3-16 inch stroke. The design of the machine is similar to that of a type of gas-engine constructed by Wittig and Hees. The gasoline is led through pipes to the pump cylinder, where it mixes with a definite proportion of atmospheric air. The mixture is then compressed and forced into the working cylinder, where it is ignited by a lamp separately supplied with oil. In four trials with the particular engine in question, the maximum force obtained was 4.5 horse power, with 130 revolutions per minute. The consumption of spirit of sp. gr. 0.675, was at the rate of 1 3/4 to 2 1/2 pints per horse power per hour. The value of the material is estimated at 15 1/8 d. per pound weight; and the machine is stated to require as little attention and to work as cheaply as a gas-engine.

POURING OIL ON TROUBLED WATERS.—At the instance of the Board of Trade, some experiments were made recently at Aberdeen Harbor entrance, with a view of testing the practicability of using oil as a means of reducing the danger to vessels entering in a gale. The occasion was most favorable. A stiff southeaster was blowing,

the sea was running high, the waves dashed over the piers, and it was next to impossible for any vessel to cross the bar in safety. Captain Brice, representing the Board of Trade, and the leading harbor officials were present. Some improvements had been made in the pumping apparatus since the last experiment, a larger hose being supplied, and seal oil being used instead of coarser oil. When the pumping commenced the waves were dashing wildly against the piers. After twenty minutes, the *London Times* reports, the crests disappeared, the breakers assumed a rolling motion, and the entrance was rendered comparatively safe. Two hundred and eighty gallons of oil were used in the experiment. The result will be reported to the Board of Trade.

THE *Railway Age* of December 28th contains a table showing that the number of miles of main track laid in the United States during the past year was 10,821, on 316 lines, in 34 States and Territories. It is thought that full returns will raise the total to 11,000 miles, which is 1,500 miles more than the total for 1881. The States showing the largest amount of railway construction are: Iowa, 953; Texas, 817; New York, 752; Ohio, 555; Arkansas, 529; Indiana, 529; Colorado, 500; Dakota Territory, 480; Pennsylvania, 464; and Minnesota, 444. Of the 316 roads noted, 140 are still incompleting. The capital invested during the year is estimated at \$270,000,000, exclusive of the amounts expended in the preparation of the roadbeds on which tracks are not yet laid.

FOR a recipe to keep water out of a coat try this treatment: Soap, 2 ounces; glue, 4 ounces; water, 1 gallon. Dissolve the glue and soap in the water by heating. The cloth or garment is boiled in this for a quarter of an hour, and then rinsed out and allowed to nearly dry; then it is allowed to lie in the following solution for six hours: Alum, 13 ounces; salt, 15 ounces; water, 1 gallon. After which it is wrung out, washed with water, and allowed to dry slowly, when it is ready for use.

STEAM has a pressure of 228° at 5 pounds; 241° at 10 pounds; 301° at 40 pounds, and 311° at 60 pounds.

PRODUCERS who have been rushing the drill for the past five years with great haste, and who could always find plenty of territory for the purpose, are actually discouraged over the prospects for the coming season. They look out over the fields they have demolished and deserted, but from these they obtain no comfort, and in the search for new worlds to conquer they make very poor headway.

PANIC IN THE PETROLEUM MARKET.

"WHILE the fish and beef monopolies have come to grief, the petroleum monopoly is still in the control of the Standard Oil Company. A bear movement was recently made in the oil market by that company, so that prices declined during the panic from \$1.36 per barrel to 84 cents. At Oil City, Pa., while prices were depressed, 9,923,000 barrels were sold in one day, while in Pittsburg 9,159,000 barrels were sold in one day, and 12,000,000 in another. It is understood that most of the oil sold at the low prices was bought for the Standard Oil Company, which thus obtained at bottom prices enough to fill its wants for an entire year. This company seems to have the object, also, of crushing out the small refiners and speculators. At any rate the company has bought its crude so cheaply that it can make a larger profit than any other refiner and still be a situation to cut prices in the refined product to rates that will be ruinous to competitors. It is to be regretted that a "day of reckoning" for this company seems to be just as far off as ever."

The above is from the Holyoke (Mass.) Manufacturer and Industrial Gazette, which, by the way, is one of the best trade journals of the East, and is similar in tone to many other items that gain circulation. It is a mistake—an error into which the press of the country runs unthinkingly and without a proper understanding of existing circumstances. While we do not propose to shield the Standard Oil Company, or any other oil company, from the blame that properly attaches to them in the conduct of affairs in which the oil public at once become deeply interested, yet it seems the height of folly to make charges when there are no grounds upon which to establish them. In the above case it is well known by all well-posted oil men that big strikes in Forest county, Pa., performed the functions in the panic ascribed to the Standard Oil Company. It is true some members of that corporation engaged in a species of conspiracy to depress prices on or about November 20th last, but devoid of the aid rendered by a new and important strike (the Anchor) the effect of the movement would have been only temporary and of no particular injury to any one. The condition of the producing fields warranted at least \$1.25 oil at that time, but the advent of not only 1 but 5 very large wells in territory previously considered either entirely dry, or at best very light, and coming in rapid succession, changed the whole aspect from

one of good promise to one of darkest gloom. Even the Standard Oil Company itself was surprised at the results. Look on the other page and behold the picture of the wells all dusters and note the price of oil on the margin—from \$1.40 to \$1.60 a barrel—and no power the Standard possesses could have averted it. Capital would not have become alarmed, and the speculator would have remained master of the situation. It is the reckless adventurer known as the wildcatter who should bear the blame of the recent panic, and not the Standard or any other oil company.

WHAT THE BUSINESS OF 1882 AUGURS.

THE year 1882 was an eventful one in petroleum circles especially. On another page will be seen a very interesting table headed "Crude Oil Market." The last column of figures is complete and shows the smallest average price for 21 years. It is possible, and barely probable, that the climax has been reached—that the direction of values has taken a right about face, determined upon another 21 years' march with the average price of 1882 as the lowest that will be witnessed in the period named. But, while it is in a measure instructive to review the history of the 21 years ended with 1882, and ponder over the remarkable and intensely interesting events that have occurred; to picture before the mind the wonderful revolutions that have transpired in the conduct of petroleum development and commerce; to reflect upon the record of failures and financial disasters and view the somewhat astonishing selections and rejections of people by the Goddess of Fortune, we leave the lengthy past and look out over the future and what it seems to promise, taking the year 1882 as the base upon which to erect and establish an opinion. Opinions, however, are of little value, unless supported by facts that seem incontrovertable, and in oil matters it is well known that these are difficult to obtain. A "646," a Reno, or a Grandin well may, in a moment, spoil all the calculations of the most astute of petroleum statisticians. Notwithstanding this there seem favorable grounds for the re-erection of the fallen monument of hope. The average price of oil in December, 1881, was 84 cents; for December, 1882, 94 $\frac{3}{4}$ cents. On the first day of January, 1882, there were 453 wells drilling throughout the Pennsylvania and New York region, and for the month of December there were 405 wells completed, whose output of oil was over 8,000 barrels a day.

The Richburg field was then in the prime of its existence, furnishing the trade with an astonishing array of from 50 to 400-barrel wells. The Bingham estate in the Bradford field had only just ceased to enlarge its productive borders, and Warren was picking up its ears as a centre of some importance. The stocks above ground amounted to over 25,000,000 barrels, and the daily production of the region was about 77,000 barrels net, or about 80,000 gross. On January 1st, 1882, it is estimated that there were yet to drill in the different fields 33,000 acres of good territory, distributed as follows, to-wit:

District.	Acres.
Alleghany	13,000
Bradford	8,000
Warren and Forest	10,000
Lower Country	2,000

Total, January 1st, 1882 33,000

The same fields on January 1st, 1883, make the following showing:

District.	Acres.
Alleghany	3,500
Bradford	2,800
Warren and Forest	3,000
Lower Country	2,000

Total, January 1st, 1882 12,300

Total, January 1st, 1883 33,000

The amount less of drillable territory on January 1883, as compared with 1882, is therefore 20,700 acres.

But there is, on the other hand, a large "bundle" of surplus stocks created during the year. These compare as follows:

Total Stocks January 1st, 1883	34,300,000
Total Stocks January 1st, 1882	25,327,403

Total Increase, 1882	8,672,597
Average Per Day	24,562

On the first of January, 1882, the daily production, as above shown, was about 80,000 barrels; and according to our shipment table for the same period, the consumption was about 56,500 barrels, the average per day for the year having been a little over 55,000 barrels. It is, therefore, easy to account for the large increase of stocks during the entire year. But here at the beginning of 1883, while the trade labors with heavy stocks, we find it nearly stripped of first-class territory, to which it should look for an increase of its rapidly failing supply. On the first of March next the entire region will not be producing more than from 60,000 to 62,000 barrels a day, which will be from 20,000 to 25,000 less than one year ago. Under such circumstances it is difficult to understand or estimate the outcome of values in the near future. It is impossible to make these comparisons without engendering feelings of a very bullish nature. Instead of increasing stocks with immense areas to drill, as was the case a year ago, stocks are now being drawn upon with but little territory that the drilling classes care to venture upon. It is true the export trade did not

flourish during 1882 as some had anticipated, yet it was quite satisfactory and will undoubtedly improve early in the spring season. The average increase in this business has been 15 per cent. for 22 years. When one year failed to come up to the gauge, the next ran ahead sufficiently to make up all deficiencies, and doubtless, judging from the movement throughout many of the Eastern countries, especially those portions of Asia not hitherto largely supplied, this demand will be forthcoming. There will be some opposition offered by attempts of the Russian dealers to gain a foothold in some parts of the Chinese empire for their product, but with proper shipping facilities the home trade of Russia will be sufficient to absorb all it produces.

From these calculations, therefore, the future of America's third staple does not look discouraging. There are some things that cannot be explained by any rule of mathematics with which the AGE is acquainted, and that is, if one year ago, under the circumstances then existing, as related above, oil commanded 85 cents a barrel, why it should not command more than 95 cents with present indications? There is a power somewhere that controls the business, and sooner or later it will be felt in a movement that will have for its aim an elevation of the scale of values. This seems inevitable. The shipments which are now quite small must soon begin to increase, and instead of stocks being swollen from month to month, they will be depleted considerably. About that time it may be to the interest of the controlling element to act the part of *bull* in the trade. This will owe, of course, to a certain degree, to the condition of the producing fields. If they continue as at present, there seems every probability that a vast improvement will transpire. The confidence of outside capital has been shaken, but this will be restored when it has discovered that there was little or no reason for alarm, even at the striking of an occasional large well. Thus it will be seen the promises of 1883 are much more flattering than those made by 1882 at its *debut*. There is everything to encourage the producer that even better than dollar oil is in store for him during the present year.

THE tables for the year 1883 are all complete in this number, and will be found quite interesting for comparisons. These tables are invaluable as aids in forming a proper estimate of the business, past and present.

THE subscription price of the AGE is now \$4.

RUNS, DELIVERIES, STOCKS.

TABLE showing the November and December Pipe Line runs and shipments, with stocks, on December 31st, 1882—official. Each barrel 42 gallons:

RECEIPTS,		BARRELS.	BARRELS.
DISTRICT.	Pipe.	November.	December.
Bradford	United		
Tidioute & Titusville	"		
Lower Gountry	"		
Monongahela	"		
Total		1,970,991 00	2,103,995 86
Bradford	Tidewater	197,309 36	217,896 50
Warren	McCalmont Stor'g Co	12,213 16	
Titusville	Octave Oil Co.	3,379 83	3,788 17
Oil City	Charley Run	370 54	325 84
Shaffer	Shaffer Run	583 00	495 25
Franklin	Franklin Pipe	8,096 05	8,348 28
Total all Lines		2,192,942 94	2,244,849 90
Average per day, December			72,413 54
Average per day, November			73,098 09
Average per day, October			85,227 24
Average per day, September			96,079 68
Average per day, August			111,243 38
Average per day, July			95,192 11
Average per day, June			95,522 95
Average per day, May			85,563 08
Average per day, April			80,093 79
Average per day, March			83,724 96
Average per day, February			83,547 40
Average per day, January			71,855 43

Deliveries.		November.	December.
DISTRICT.	PIPE.		
All Points	United	1,157,166 36	964,908 48
Titusville	Octave Pet. Co.	3,157 23	2,889 46
Franklin	Franklin Pipe	10,891 74	5,554 41
Shaffer	Shaffer Run	95 38	95 36
Oil City	Charry Run		
Bradford	Tidewater	208,459 76	156,005 10
Total deliveries		1,404,640 08	1,129,452 81
Amnt of runs in excess of Shipments		788,302 86	1,115,396 09

DISTRICT.	PIPE.	Nov. 30.	Dec. 31.
Oil City	Charley Run	3,864 31	3,844 21
Bradford	Tidewater	2,431,621 16	2,490,424 85
All Districts	United	31,006,077 70	31,790,241 74
Shaffer	Shaffer Run	27,388 73	27,441 60
Titusville	Octave Oil Co.	5,184 01	5,775 94
Franklin	Franklin Pipe	14,658 37	17,452 24
Total December			34,335,180 58
Total November			33,604,841 36
Total October			32,210,533 76
Total September			31,253,074 61
Total July			30,157,021 20
Total June			29,540,517 47
Total May			28,833,715 51
Total April			27,969,884 48
Total March			27,252,806 93
Total February			26,414,274 36
Total January			25,788,071 79

Increase December	730,239 22
Increase, November	838,195 69
Increase October	559,111 91
Increase September	957,485 53
Increase, August	1,096,026 41
Increase, July	616,503 73
Increase, June	706,801 96
Increase, May	863,631 03
Increase, April	717,077 55
Increase, March	838,532 57
Average increase per day, December	23,556 10
Average increase per day, November	18,537 06
Average increase per day, October	27,823 88
Average increase per day, September	27,874 64
Average increase per day, August	35,355 69
Average increase per day, July	19,887 21
Average increase per day, June	23,902 58
Average increase per day, May	27,859 06
Average increase per day, April	23,902 58
Average increase per day, March	27,049 44
Average increase per day, February	22,364 00
Average increase per day, January	12,174 73

THE new United Pipe Line building in Bradford, which has been occupied since the 8th inst., is a very commodious and convenient structure. The building was "made to order," so to speak, and being a substantial brick, cannot be so easily destroyed by fire as the old wooden one that occupied the same site.

DECEMBER OFFICIAL QUOTATIONS FOR CRUDE.

THE following table shows opening, highest, lowest, and closing quotations at the Oil Exchange each day; also average for the month:

	Opening.	Highest.	Lowest.	Closing.	Avg.
4.....	1 09 3/4	1 10 1/2	1 08 1/2	1 08 5/8	1 04 1/2
5.....	1 08 1/2	1 09	1 02	1 04 3/4	1 05 1/2
6.....	1 05	1 09 1/4	1 02 3/4	1 08 5/8	1 06 3/4
7.....	1 11	1 15 1/2	1 08	1 14 3/4	1 11 3/4
8.....	1 14 1/2	1 16 1/2	1 12 1/2	1 12 3/4	1 14 3/4
9.....	1 13	1 14 1/2	1 10	1 11 3/4	1 14 1/4
11.....	1 10 1/2	1 12	1 08 1/4	1 09 5/8	1 15 1/8
12.....	1 09 3/4	1 10	1 08 1/2	1 08 1/2	1 09 1/4
13.....	1 03 1/2	1 03 1/2	89 1/4	91 1/2	96 3/8
14.....	95	96 1/2	91 1/4	92 1/4	93 3/8
15.....	92 1/2	96 1/4	92 1/2	95 1/8	94 3/8
16.....	95 3/4	96 1/4	92 1/2	93 3/8	94 3/8
18.....	92 1/2	95 1/4	93 3/8	95 1/4	94 1/4
19.....	96 1/2	98	84 1/2	84 1/2	91 1/4
20.....	79	82 1/2	78 3/8	81	80 3/8
21.....	82 1/2	85	81 1/2	84 3/8	83 1/4
22.....	85	85	81 1/4	81 1/4	83 1/8
23.....	81 1/2	81 1/2	76 1/4	78 1/4	88 3/8
26.....	79	79 1/2	74 3/4	74 3/4	77 1/8
25.....	75 1/4	77 3/4	74 3/4	76 1/4	76 1/4
28.....	76 3/4	80 1/4	76 3/4	78 1/4	78 1/2
29.....	85	85	81 1/4	81 1/4	82 1/8
30.....	91 1/2	92 1/2	87 3/4	92	90 3/8
General Average;					94 3/4

DECEMBER OFFICIAL QUOTATIONS FOR REFINED.

THIS table gives the daily quotations for refined oil at the principal foreign as well as domestic ports:

	N. Y.	Philadelphia.	Baltim're.	London.	Bremen.	Antwerp.
December, cts.	cts.	cts.	pence.	m'rk.	fr'cs.	
1	8 5/8	8	8	7 1/2	7.50	19 3/4
2	8 5/8	8	8	7 1/2	7.50	19 3/4
4	8 5/8	7 7/8	7 7/8	7 1/2	7.50	19 3/4
5	8 1/4	8	8	7 1/2	7.50	19 3/4
6	8	7 7/8	7 7/8	7 1/2	7.50	19 3/4
7	8	7 7/8	7 7/8	7 1/2	7.50	19 1/2
8	8 5/8	8	8	7 1/2	7.60	19 1/2
9	8 5/8	8	8	7 1/2	7.60	19 1/2
11	8	7 1/2	7 1/2	7 1/2	7.60	19 1/2
12	8	7 1/2	7 1/2	7 1/2	7.60	19 1/2
13	7 1/2	7 1/8	7 1/4	7 1/4	7.60	19 1/2
14	7 1/2	7 1/4	7 1/4	7 1/4	7.60	19 1/2
15	7 3/4	7 1/4	7 1/4	6 3/4	7.60	19
16	7 3/4	7 1/4	7 1/4	6 3/4	7.40	19 1/4
18	7 1/2	7 1/4	7 1/4	6 3/4	7.40	19 1/4
19	7 3/8	7 1/4	7 1/4	6 3/4	7.40	19 1/4
20	7 1/4	7 1/4	7 1/4	6 7/8	8.30	19
21	7 1/4	7 1/4	7 1/4	6 7/8	7.30	19
22	7 1/2	7 1/8	7 1/8	6 7/8	7.30	19
23	7 3/8	7 1/8	7 1/8	6 7/8	7.30	19
26	7 3/8	7 1/4	7 1/4	6 7/8	7.30	19
27	7 1/4	7 1/8	7 1/8	6 7/8	7.30	19
28	7 1/4	7 1/8	7 1/8	6 7/8	7.30	19
29	7 3/8	7 1/4	7 1/4	6 7/8	7.30	19
30	7 3/8	7 1/4	7 1/4	6 7/8	7.30	19

"THE Standard Oil Trust" is the title of the thing commonly termed the "Standard Oil Company." There are four distinct Standard Oil Companies—one in New York, New Jersey, Pennsylvania and Ohio. The stock of these individual corporations is mysteriously held by "The Standard Oil Trust."

THE Reid & Brenneman well, near the Reno, in Forest county, did 1,700 barrels the first day. It found its oil six feet from the top of the rock, showing clearly, as pointed out in last month's AGE, that the well is situated near the northern border of the deposit.

FOREIGN OIL DEPARTMENT.

THE RUSSIAN PETROLEUM SUPPLY.

[Oil and Colourman's Journal.]

THE rumored impending exhaustion of the oil wells of Pennsylvania need excite no fear on the part of those interested in petroleum. By the approaching completion of the Transcaucasian railway, from Baku to Batoum, a fresh supply will be rendered accessible to Europe surpassing any that the United States can furnish to the world. The supply in question is not merely one of the raw resources of Russia. It is a well-developed industry. So developed is it, indeed, that within the last three years it has nearly driven the American article out of the home market, and is preparing at the present moment not only to inundate Europe with oil, but also to compete with Pennsylvania in the markets of India. The progress of the Baku oil trade is of interest not merely to those concerned in petroleum, but to the general public also. Thanks to the Caspian petroleum resources, one of the greatest problems connected with any Russian military operations in the Central Asian steppes—the question of the supply of fuel—has been satisfactorily solved; the locomotives on the Transcaspian railway being furnished with oil-consuming furnaces, and the barracks of the troops at Askabad and other Turkoman points being heated with stoves burning naphtha refuse from Baku. Further, to convey the oil up the Volga to the Russian markets a dozen steamers, 250 feet long, have been placed since 1877 on the Caspian, and 200 or 300 steamers built expressly for the trade. In this manner, without any action on the part of the Government, Russia has been furnished with a mercantile marine capable of ferrying the largest army across the Caspian for any operations in the direction of India. This is a matter which should not be lost sight of by the English authorities, and it is a question whether it ought not to influence them to construct a railway from Sibi to Quetta instead of the projected military road.

Petroleum, or naphtha, as Russians call it, is found sporadically all over the Caucasus, but particularly in two localities, the Aspheron peninsular in the Caspian, and the Taman peninsular in the Sea of Azoff. The former, with the contiguous oil region further inland of Baku, covers an area of some 1,260 square miles, of which as yet only a few miles are developed. Several causes have impeded its development, all of which have either now been removed or are on the point of removal. Up to 1872 the extrac-

tion of petroleum was a monopoly farmed out by the Caucasian Government, and it needs no extensive experience of monopolies to realize that the industry did not make much progress under this system of working. The production, in fine, never exceeded two-and-a-half million gallons a year, although the oil lay on the surface, and for a long period there was no American article to compete with it in the Russian market. By 1872 American kerosene had obtained such a hold of the home market that the scandalous gagging of the Baltic oil region for the sake of a single merchant could no longer be endured, and consequently the monopoly was abolished and the industry thrown open to the entire world. The result of this was soon perceptible. Large numbers of capitalists flocked to the spot, wells were sunk in the most scientific manner, and by 1875 the supply had increased from two-and-a-half million gallons to thirty-four millions.

A fresh difficulty now presented itself. Vast stocks of oil had been, says *The Globe*, accumulated on the surface, but no efficient means existed for conveying it to the Russian market. On the spot petroleum was literally as cheap as dirt. A barrellfull of petroleum, containing forty gallons of oil, could be purchased for a few pence—it was literally a drug in the Baku market. At this juncture, a Swedish engineer, Nobel by name, appeared on the scene and revolutionized the industry. He conceived the idea of carrying oil in pipes from the wells to the refineries at Baku, thence in tank steamers to Tzaritzin—the head of the railway system on the Lower Volga—and afterwards in tank cars to the various towns of Russia. For a time he encountered such opposition that it seemed as though his plans would fail; the petroleum borers refused to co-operate in the pipe scheme; the Caucasus and Mercury Steamboat Company refused to fit their steamers with tanks, and the railways to add any oil-conveying trucks to their rolling stock. Nobel, however, was not to be beaten by these obstacles. A company was formed at St. Petersburg, the capital of which now exceeds a million sterling, and by degrees the scheme was pushed until at present very little remains to complete the edifice. The company first constructed huge iron reservoirs at the wells, then pipes to the refineries at Baku eight miles beyond, and afterwards more pipes to piers in the harbor at Baku. After this, steamers specially designed for the conveyance of oil were constructed in Sweden, and despatched thence to Baku by means of the magnificent canal

system connecting the Neva with the Volga. This was followed by the construction of an immense number of oil trucks, and finally by the construction of commodious stations for their reception at St. Petersburg and other centres. The money that achieved all this was entirely Russian, but the brains directing the operations were Swedish from beginning to end.

What has been accomplished by this extensive transport organization serves as a criterion of what is possible in regard to the despatch of oil to Europe, when once means are furnished for conveying it across the Caucasus to the Black Sea. In 1875, before the Swedish company began operations, the production of crude petroleum was 34,000,000 gallons. This year the output, up to the beginning of December, has been 200,000,000 gallons. Upwards of sixty miles of pipe exist at Baku; twenty-seven piers have been built for steamers to take aboard oil; a dozen steamers, 250 feet long, ply on the Caspian, and thirty or forty on the Volga; while on the railways nearly 2,000 tank cars are employed in conveying kerosene to the various Russian towns. All these steamers are driven by oil-consuming furnaces, and preparations are being made for using oil-consuming locomotives on the South Russian lines in place of those burning wood and coal. Thanks to these transport resources, the export of American kerosene to Russia has been largely diminished; in 1873 upwards of 80 per cent. of the oil used in Russia came from Pennsylvania; last year the amount was only 12 per cent. The industry has now reached a point at which it would have probably stagnated but for the construction of the Transcaucasian Railway. The home market has been almost won from the foreigner, and oil is even being sent in tank cars to Germany and Austria; but the cost of transport up the Volga, and the freezing of that river in winter, have been almost insuperable obstacles to any extensive European trade. As a matter of fact, stocks have again accumulated on the spot to such an extent that, in spite of the large export this year, petroleum can be bought delivered at Baku at the rate of ten gallons a penny. The opening of the Baku-Batoum Railway will relieve this plethora. Already reservoirs and refineries are being built at Batoum, and steamers are being constructed for conveying the oil thence to the ports of the Black Sea and Mediterranean. Anticipating the inability of the Transcaucasian Railway, which has only a single line and many awkward gradients, to convey the requisite quantity of oil to the Black Sea coast, plans have been

broached for constructing a pipe across the Caucasus to the wharves at Batoum. If this scheme be carried out at all, it will doubtless be accomplished by French capitalists, who are already overrunning the Caucasus and working many of the wells. To realize the project over a million of capital, perhaps two millions, would be required, and the relations of England and Russia are not exactly those that would tempt English capitalists to embark upon such a costly undertaking, even apart from the unsettled state of the Government of Russia. The refusal of London to subscribe to the recent Russian loan is not favorable to the realization of any scheme of this character, even if guaranteed; but Russia does not look for help to England, or indeed to Europe, a strong feeling prevailing against allowing the industry to pass any further under foreign control. But, sooner or later, a pipe scheme seems likely to be adopted, unless, indeed, the Ditmar process of solidifying petroleum—which is announced to be a success after many experiments at Baku—acts injuriously upon the project. In the meantime it is consoling to know that Baku can produce more oil annually than Pennsylvania, that she has a supply which is practically inexhaustible, and that all that is required to restore the equilibrium disturbing the failure of the American supply is to provide adequate means of transport between the Caspian and the Black Sea.

THE Bonanza Oil Company is having a big court fight with the Bradford Oil Company for possession of 453 acres of land in the Knapps Creek and Indian Creek section of the Bradford district. In 1880 the Bradford Oil Company sold to the Bonanza Oil Company 453 acres of land on Indian Creek, joining the Barse, Angell & VanCampen properties, for \$125,000, but afterward failed to convey the title. The suit was brought in the United States District Court in New York to recover the property and profits since the date of the sale. Mr. Crowley, of Randolph, was appointed commissioner to take testimony, and a number of prominent lawyers are engaged in the case. The first meeting was held in Olean and lasted two days. It was then adjourned to Bradford, where, in the Bradford company's office, testimony has been taken.

THE National Transit Company controls the United and all other pipe lines of the oil country except the Tidewater, and it has been around looking for a cat-hole to pounce upon that.

REPORT OF OIL OPERATIONS FOR DECEMBER. Wells Completed.

BRADFORD FIELD.

EAST AND WEST BRANCHES.

Lot.	Operator.	Production
Clapp, J. M. Clapp, No. 26		10
Newell, Harris & Wallace		12
Morris, Emery Oil Co., No. 45		10
Dent, P. C. L. & P. Co., (stray sand) No. 31		10
" " " " " 32		20
" " " " " 33		20
" Whitney & Wheeler, No. 19		10
" " " " " 20		20
Cary, Kolosky & Caldwell, est.		8
Drake, W. P. Book		12
Foster, Tarbel, Shafer & Co.		12
Lot 2556, Bayne, Fuller & Co.		15
" Humphrey & Barnsdall, No. 3		12
" " " " " 4		12
Taylor, P. F. Kearns		12
Minard Run Tract, (owners) No. 62		20
Mack, West Branch Oil Co.		13
Nile, Bradford Oil Co.		10
Quintuple, lot 44, J. W. Humphrey		12
" " " " " 50, B. F. Brinton		12

KENDALL CREEK.

Dodge, Dodge & Clark	3
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FOSTER BROOK.

Pembroke, P. Monroe	5
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COLE CREEK.

Lot 399, Forest Oil Co., No. 28	15
495, " " " " " 8	10
424, Forman & Union Oil Co., No. 12	15
535, Geo. V. Forman, No. 11	55
371, " " " " " 12	30

INDIAN CREEK.

Keating, Forest Oil Co., No. 32	8
" Reid & Brown, No. 4	8
Loup, Follett Bros.	10
" Hart & Hicks	12

FOUR MILE.

Wid, Carroll, Collins & Co.	8
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KINZUA.

Bingham, Union Oil Co., No. 35	25
Hulings, R. J. Straight	10

Wells	34
Production	478

THE ALLEGANY FIELD.

ALMA.

Lot 1, Phillips Bros	8
18, G. M. Barney	12
18, Mrs. O. P. Taylor	20
23, Duke & Norton Oil Co., No. 24	12
17, Anderson, Rauber & Co.	12

Wells	5
Production	64

BOLIVAR.

Lot 5, Star Oil Co.	12
14, Carroll Bros	8
32, Hazlewood Oil Co., No. 36	15
37, Dow & Nutting, No. 3	15
37, Chauncy Oil Co., No. 1	15
" " " " " 2	15
" " " " " 4	15
" " " " " 5	15
" " " " " 6	15
" " " " " 8	15
37, Stewart & McDonald	12
37, Mutual Oil Co., No. 4	12
37, " " " " " 5	12
37, Dunning Farm Oil Co., No. 3	15
37, E. A. Schoonmaker	10
38, Williams & Curtiss	12
38, Ballard & Forman	15
38, McCalmont Oil Co.	18
45, Franchot Bros., No. 8	15
45, Knox & Canfield	6
46, T. Kervin (McCalmont pur)	5
63, Thompson & Huver, No. 17	15
63, " " " " " 18	25
63, Columbia Oil Co., No. 9	12
63, " " " " " 13	12
63, Northrup & Co.	15

Wells	26
Production	351

WIRT.

Lot 49, Luper Bros	15
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Wells	1
Production	15

GENESEE.

Lot 8, Willets Bros., No. 29	10
7, T. Kervin (McCalmont pur)	15
8, St. Joe Oil Co., No. 8	15
8, " " " " " 10	15

16, A. T. Palmer	12
16, Laney Bros	20
16, Markey Bros	10
23, J. W. Percavil	10
24, W. P. McCleary	10
24, Daggett Oil Co. (fee)	20
24, " " " " " No. 26	20
24, Hammond & Barton, No. 11	8
24, " " " " " 12	12
24, R. R. Armor, No. 6	12
24, " " " " " 7	13
24, Davis & Haldeman	12
24, " " " " " 6	6
24, Cuba Oil Co.	5
30, Coss & Co.	10
32, Schalk & Haldeman	15
32, Chambers	dry

Wells	21
Production	239
Dry	1

CLARKSVILLE.

Lot 10, Whipple Bros	10
19, J. C. Smith & Son	5
17, T. C. McManus	10
25, Harris & Co.	dry
34, Love Bros	5

Wells	5
Production	33
Dry	1

SCIO.

Lot 1, York, Wright & Co.	10
2, J. Varney	10
2, Leonard & Henderson	12
2, I. W. Shirley	10
2, Baldwin & Co.	12
3, Morrison & Littimer	5
Friendship, Howard & Co.	dry

Wells	7
Production	59
Dry	1

WARREN AND FOREST.

GLADE.

Myers, J. Spence	2
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CLARENDON.

Lot 551, Brown Bros	dry
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CHERRY GROVE.

Lot 589, Wilcox Oil Co.	15
590, Melhoopany Oil Co.	20
611, Forest Oil Co., No. 14	3
680, John McKeown	30
680, Potter & Thompson	15
681, Story & Adams	dry
681, Union Oil Co.	5
Tract 3,122, Short Oil Co.	dry

FOREST.

Tract 2,735, Reno Oil Co.	750
" 3,198, Murphy & Co.	20
Ent. Trans. Co., Fertig & Heune	10
Tract 5,236, Grandin & Co.	dry

Wells	14
Production	870
Dry	4

LOWER OIL FIELD.

VENANGO.

Boyle, Richardson & Hughes	60
Shiner, Williams & Mack	60
Ray, J. Heffernan	40
Buford, Morrison	dry
" Smullin	dry
C. Finchbaugh, W. Chambers	dry

BUTLER.

Reiber & Co., Baldrige O & T Co.	40
Renfrew, Forest Oil Co & Jennings	25

BYROM CENTER.

Williams, Welsh, Riddle & Co.	dry
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Wells	9
Production	225
Dry	4

DRILLING WELLS.

EAST AND WEST BRANCHES.

Lot.	Operator.	Depth.
Clapp, J. M. Clapp, No. 25		400
Morris, Emery Oil Co., No. 49		1100
" " " " " 51		1100
" " " " " 52		800
" " " " " 2		2 rigs
Stoddard, " " " " " 4		rig
" " " " " 5		rig
Newell, Harris & Wallace		drilling
Dent, P. C. L. & P. Co., No. 34		rig
" " " " " 35		rig
" Whitney & Wheeler, No. 21		2000
" " " " " 22		900
" Goetel Bros (fishing)		900
" " " " " 200		200
Raub, P. C. L. & P. Co.		rig
Smith, P. T. Kennedy		rig
Freeman, Tarport Co.		rig

Lot 2,256, R. J. Straight	drilling
2,256, Bayne, Fuller & Melvin	1500
2,256, Humphrey & Barnsdall, No. 4	rig
2,256, " " " " " 5	rig
John. McKeown	600
" " " " " 400	
" " " " " 400	
" " " " " 200	
N. W. Coal Co. tract, Union Oil Co. No. 18	400
Minard Run tract, (Owners) No. 63	1600
" " " " " 64	800
2,263, G. H. VanVleet, No. 8	sand
2,563, " " " " " 9	100
2,263, " " " " " 10	200
224, Casper Taylor	1200

QUINTUPLE.

Lot 19, E. K. West	rig
25, J. S. Wilson	rig
69, J. W. Humphrey	rig
175, Atwater & Co.	rig
176, H. A. Booth	rig
202, Butler & Martin	rig
203, " " " " "	rig
211, Gardnier & Co.	sig
260, E. T. Howes	rig
223, Petrolia Oil Co.	rig

WEST BRANCH.

Mack, West Branch Oil Co.	rig
" A. F. Heald (fishing)	700
" Fisher Bros	300

Rigs	21
Drillings	25

K&NDALL CREEK.

Dodge, Dodge	rig
Storms, Wright & Storms	200
Moore, P. C. L. & P. Co. No. 10	1500
Clark, " " " " " 5	950
Leedom, Robert Gregg	300

FOSTER BROOK.

Willets, I. Willets	rig
" Young & Willets	rig
E. T. Co. F. W. Mitchell No. 5 fishing	1000
" Whitney & Scofield	rig
Tait, Thomas Tait	rig
Bell's Camp, H. R. Proctor	rig
Foster, C. H. Foster	900
" " " " "	rig
C. B. & H. Union Gas Co.	600

COLE CREEK.

Lot 399, Forest Oil Co. No. 24	rig
416, Lee & Apple No. 8	700
416, " " " " " 9	rig
415, Johnson & Union Oil Co. No. 47	400
455, Bayne, Fuller & Melvin	rig
439, J. L. McKinney & Co. No. 28	sand
571, Geo. V. Foreman No. 15	600

INDIAN CREEK.

Loup, Hart & Hicks No. 23	rig
" Follett Bros.	rig
Keyes, Indian Creek Oil Co.	rig
Barse, A. D. Moulton	1400
Merritt, C. H. Lockhart	rig
Hamlin, J. B. Daniels	drilling

KINZUA.

Bingham, Union Oil Co., No. 36	400
" " " " " No. 37	rig
" " " " " No. 38	rig
S. O. Campbell, Gilbert & Co.	rig
G. W. Campbell, Porter & Co.	rig
Potter Co., Whitcomb & Wilson	drilling

Rigs	11
Drilling	8

Total	19
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THE ALLEGANY FIELD.

ALMA.

Lot 18, W. T. Lewis & Co.	200
18, " " " " "	rig
18, A. Thornton	rig
18, Scott & Scofield	100
23, Duke & Norton Oil Co., No. 30	rig
17, Anderson, Rauber & Co.	rig
38, Snow & Co.	2 rigs
52, Durkee, Young & Co.	rig

Rigs	7
Drilling	2

Total	9
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BOLIVAR.

Lot 5, Star Oil Co.	rig
6, Love & Pentzer	300
6, " " " " "	rig
6, McCoy & Wetter	700
7, F. D. Taylor	sand
7, Grace & Goldsborough	rig
32, Hazlewood Oil Co.	rig
37, Moran & Klinger	rig
37, Dow & Nutting	rig
37, Gibbs & Williams	sand
37, Chauncy Oil Co. No. 3	300
37, " " " " " No. 9	rig
37, " " " " " No. 10	rig
37, Stewart & McDonald	400

CRUDE OIL MARKET.

MONTHLY AND YEARLY AVERAGE PRICE OF PIPE LINE CERTIFICATES OR CRUDE OIL AT THE WELLS, IN BARRELS OF 42 GALLONS EACH.

A. D.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	D'emb'r	Yearly
	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Aves.
1859.									20.00	20.00	20.00	20.00	20.
1860.	19.25	18.00	12.62½	11.00	10.00	9.50	8.62½	7.50	6.62½	5.50	2.75	2.75	9.
1861.	1.00	1.00	1.00	.62½	.50	.50	.50	.25	.20	.10	.10	.10	.
1862. . . . .	.10	.15	.22½	.50	.85	1.00	1.25	1.25	1.25	1.75	2.25	2.25	1.
1863.	2.25	2.50	2.62½	2.87½	2.87½	3.00	3.25	3.37½	3.50	3.75	3.85	3.95	3.
1864.	4.09	4.37½	5.50	6.56	6.87½	9.50	12.12½	10.12½	8.87½	7.75	10.00	11.00	9.15½
1865.	8.25	7.50	6.00	6.00	7.37½	5.62½	5.12½	4.62½	6.75	8.12½	7.25	6.50	6.87
1866.	4.50	4.40	3.75	3.95	4.50	3.87½	3.00	3.75	4.50	3.39	3.10	2.12½	3.59
1867.	1.87½	1.85	1.75	2.07½	2.35	1.90	2.62½	3.15	3.40	3.55	2.50	1.87½	2.74
1868.	1.95	2.00	2.55	2.82	3.75	4.50	5.12½	4.57½	4.00	4.12½	3.75	4.35	3.41½
1869.	5.75	6.95	6.00	5.70½	5.35	4.95	5.37½	5.57½	5.50	5.50	5.80	5.12m	5.63¼
1870.	4.52½	4.52½	4.45	4.22½	4.40	4.17½	3.77½	3.15	3.25	3.27½	3.22½	3.40	3.89
1871.	3.82½	4.38	4.25	4.01	4.60	3.85½	4.79	4.66	4.65	4.82½	4.25	4.00	4.34
1872.	4.92½	3.80	3.72½	3.52½	3.80	3.85	3.80	3.58½	3.25	3.15	3.83½	3.32½	3.64
1873.	2.60	2.20	2.12½	2.30	2.47½	2.22½	2.00	1.42½	1.15	1.20	1.25	1.00	1.83
1874.	1.20	1.40	1.60	1.90	1.62½	1.32½	1.02½	.95	.95	.85	.55	.61½	1.17
1875.	1.03	1.52½	1.75	1.36½	1.40	1.26½	1.09	1.13	1.33	1.32½	1.44	1.55	1.35
1876.	1.80	2.00	2.01	2.02½	1.90½	2.01½	2.24½	2.71	3.81	3.37½	3.11	3.73	2.56¼
1877.	3.53¼	2.70	2.67½	2.58	2.24	1.94½	2.07½	2.51	2.38	2.56¾	1.91	1.80	2.42
1878.	1.43	1.65¼	1.59	1.37½	1.35¼	1.14	.98¼	1.01¾	.86½	.82½	.89¾	1.16	1.19
1879.	1.03	.98	.86¼	.78½	.76	.68¾	.69¾	.67½	.69½	.88½	1.05¾	1.18½	.85¾
1880.	1.10¼	1.03½	.88¼	.78	.80	1.00	1.06¼	.91	.96	.96¾	.91¾	.91¾	.94½
1881. . . . .	.95½	.90¾	.83¾	.86¾	.81¾	.81¼	.76¾	.78¾	93.3-16	.94¾	.83	.84	.85¾
1882. . . . .	.83¼	.85¾	.80¾	.78½	.69¾	.54½	.56¾	.58¾	.74½	.94	1.27½	.94¾	.79¾

DECEMBER SALES AND RUNS.

FOLLOWING is a summary of the sales of oil at the Bradford, Oil City, Pittsburg and New York Oil Exchanges during the month of December. Nothing less than 1,000 barrel certificates ever sold; each barrel represents forty-two gallons:

January, . . .	23,885,000	11,441,000	27,163,000
February, . .	19,412,000	9,153,000	22,207,000
March, . . .	27,467,000	13,208,000	29,448,000
April, . . .	22,245,000	8,325,000	19,171,000
May, . . .	39,777,000	21,814,000	38,402,000
June, . . .	29,969,000	20,417,000	38,127,000
July, . . .	48,736,000	22,040,000	31,536,000
August, . .	34,494,000	16,140,000	50,000,000
September, .	113,402,000	67,220,000	156,450,000
October, . .	59,797,000	36,586,000	69,737,000
Nov. . . .	105,500,000	76,000,000	164,000,000
Dec. . . .	72,000,000	35,000,000	100,000,000

Average runs and shipments each month of year to December 31st.

	Total Daily Runs.	Bradford Daily Runs.	Total Daily Shipm'ts.	Bradford Shipm'ts.	Char- ters.
January, . .	70,401	62,229	55,798	40,864	33,877
February, .	81,853	72,825	63,062	47,183	43,075
March, . .	81,186	65,758	53,489	38,963	41,080
April, . .	80,158	67,392	54,413	35,662	35,453
May, . . .	83,397	75,472	56,478	43,329	47,220
June, . . .	89,103	78,701	65,266	47,980	54,829
July, . . .	87,948	65,445	61,779	41,013	34,213
August, . .	111,243	70,646	66,046	42,500	. . .
September, .	96,079	64,608	66,220	42,000	40,000
October, . .	85,227	. . .	67,132	41,000	. . .
Nov. . . .	72,852	58,345	46,821	36,100	31,375
Dec. . . .	65,624	49,789	36,140	18,603	42,545

A NEW well near Carbon Centre, Butler county, is yielding fifteen barrels a day.

FOREST COUNTY.

SHEFFIELD Pa., Jan. 20th, 1883.—During the month past nearly all the wells that were attracting the attention of the trade have come in and their influence has passed away for the time being. In some phases the wells that have proven to be gushers are to be viewed as dangerous omens to the future of the field. A few more such scattered throughout the district would so exhaust it that the man following next spring with a well would find that the precious stuff he was in search of had flown elsewhere. It is well known that the prolific rock of the section does not measure ten feet in thickness, and in most cases where it has been punctured it has been found to be much less—about six feet. From this fact alone it may be concluded that the life of the wells is to be extremely short, and the average yield of the district much less than that of Bradford or Alleghany, or perhaps any other portion of the oil universe.

The Reed & Brenneman, which was mentioned last month as a probable border well, has shown unmistakable evidences of such a character. Its oil was found five feet lower in the rock than at the Reno well a few hundred feet south, showing clearly that it assumes like characteristics to the border wells of Cherry Grove. Besides this the conglomerate was very thin. The well started at 1,700 barrels a day, and is still doing about 200 barrels.

THE PETROLEUM AGE.

DEVOTED TO THE

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W. J. McCULLAGH,

Editor.

It is suggested that the United Pipe Lines received 175,000 barrels of oil though the purchase of the McCalmont Storage Co's. property at Warren, which was classed as "runs" in the monthly statement of that institution. This is a mistake, as the oil was placed to the credit of stocks on hand.

THE Producers' Petroleum Exchange of Bradford, which was looked upon at the beginning by the old Oil Exchange as a mere "bucket shop" actually handles as much oil some days as the latter. And furthermore, it continues to increase in interest and business, and may some time prove an important rival to the old mart. The two should unite as one, which would make the Bradford Oil Exchange the largest of the kind in the world. The P. P. E. has now on hand about \$25,000 which if used to enlarge the old Exchange and improve it, would be perhaps the very best thing that both could do. However, so far as the city is concerned it might profit more largely by having both institutions, but it is business they should seek, and not competition.

A PIPE LINE EXAMINER.

A LENGTHY "preamble and resolutions" has been adopted by several of the Petroleum Exchanges, setting forth that there exists a great necessity for the appointment by the National Government of an examiner of the pipe-line business of the oil country. Complaint is made that banks, at the important money centres of the country, decline to loan money upon the certificates of these pipe lines, which are considered in petroleum circles as the best collateral that can be obtained. The objection of these outside money-lenders seems to be that in taking these certificates as security for loans they incur the risk of a failure at any time of the pipe lines; or, in other words, that they are subject to the

integrity of the managers, and in case of default on their part the security would be worthless. In one sense the position assumed is a just one. Pipe lines have failed heretofore, as the case of the Pennsylvania Transportation Co. proves. In that instance, however, there were some reasons that have since been removed. There was a very strong competition in that part of petroleum commerce, and that same opposition arose from the encroachments of the system that now controls the transportation of crude oil—the United. Of course no one at all acquainted with the facts would doubt for a moment the solidity of the United or Tidewater Pipe Lines, and especially the former, whose certificates alone are used in the manner indicated. But, a business that has become of as great importance as the oil business should be so regulated by law as to remove all obstacles from its easy and safe conduct. An outsider or stranger observes the name of the treasurer of the pipe line he represents on the face of the certificate, just as he beholds the name of the treasurer on a national bank note. The latter is known by all Americans, but the former is known by those only having transactions in oil. The question would naturally arise on presentation of a pipe line certificate to a money-lender not thoroughly acquainted with the circumstances, Who is responsible for this piece of yellow paper? The answer, by the holder, would simply be, "The United (or Tidewater) Pipe Line, of course." And, "Who runs the United Pipe Line, pray?" "Well, sir, J. J. Vandergrift is president of it, and D. O'Day is vice-president," etc., etc. Now, this would be a rather poor explanation to a stranger, of whom it had been required that he part with funds at simple interest on such collateral. A government Examiner whose duty it should be to inquire into and report the exact standing of these pipe line organizations once in three months would be a most valuable acquirement to the oil trade. And, moreover, none should more heartily endorse his appointment than the managers of the lines themselves. A faithful observance of the functions of such an office would result in incalculable benefit not only to the pipe lines but to holders of their certificates of deposit. The pipe lines are solvent beyond question, but something more than our mere say-so is necessary to establish the fact to the satisfaction of the financial world. The managers of the lines already express a willingness to permit any authorized party to make an examination of their standing, but it is quite clear that the effect of a govern-

ment employe's report would be much more satisfactory to the public at large than that of any other party or person, no matter by whose authority it should be made. It is hoped that the matter may come before the present Congress, and that our solid representative, Hon. W. W. Brown, may prove a valuable support to the measure.

THE SITUATION.

THERE is nothing in the situation at present, Jan. 25th, to lead the trade to doubt that the market price of petroleum must in the future rule much higher than it has for the past two months. This is the season of the year when shipments are light and when the whole trade has taken an apparent halt for a fresh start, as it were. The total runs of the lines after deducting the amount received by the United from iron tankage was only about 65,000 barrels a day, and included in this appears a slight reduction of stocks at wells in all districts except that of Forest County. In that particular locality, only, do we find any increase in production, while in all the others there is a marked decrease. The figures on the production of each field as compared with last month, are as follows:

DISTRICT.	DECEMBER. Barrels.	JANUARY. Barrels.
Bradford	37,650	35,010
Allegheny	12,800	11,750
Cherry Grove	2,200	1,700
Forest and Warren	4,500	5,000
Lower Country	9,150	8,271
Totals	66,300	61,731

The Bradford Era published a comprehensive statement on the 25th inst. of the condition of stocks and production of the Bradford field, which may be taken as a fair guide to the actual condition of affairs. These stocks compare for December and January as follows:

NO. OF WELLS, DECEMBER.	STOCKS, DECEMBER.	NO. OF WELLS, JANUARY.	STOCKS, JANUARY.
5,537	457,947	5,550	429,928

The above wells are well distributed over the entire Bradford region, and it is believed that they represent fairly the true condition of stocks in the entire McKean field.

As near as can be ascertained there were on the 1st of December 11,134 producing wells in the McKean field. During that month there were thirty-five new wells added to the list, and it is known that fifteen old wells were pulled up. This makes an aggregate of 11,154 producing wells in the field on the first of the present month. If the stocks at the number of wells included in the above table may be taken as an average for the entire Bradford field, the following table may be considered of interest. It shows

that the entire stocks on the 1st of December were 908,534.4 barrels against 855,511.8, a decline of 53,022.6 barrels during the month of December:

	NO. PRODUCING WELLS.	AV. STOCKS PER WELL.	TOTAL STOCKS. BARRELS.
December 1	11,131	81.6	908,534.4
January 1	11,154	76.7	855,511.8
Decrease of Stocks in December			53,022.6

The entire runs for any given month less the decrease or plus the increase of stocks will give the production for that month. The entire runs of the United and Tidewater Lines during December in the Bradford Field were 1,115,817.3 barrels. From this we have the following table showing the average daily production of the Bradford Field for December:

	BARRELS.
Total United and Tidewater runs	1,115,817.3
Decrease in stock	53,022.6
Total production	1,062,794.7
Average daily production of Bradford Field in December	34,283.0

There was no private iron tankage turned into either line in the Bradford Field during December.

The showing is such that confidence in better prices has been restored to a certain extent. Capital is seeking investment in oil even at one dollar a barrel, the point reached on the 24th. It is true there are hindrances to a rapid advance. Buyers are by no means as numerous as they were when the dollar mark was scaled in November last, but those who are purchasing are among the class who are abundantly able to maintain their holdings for any reasonable length of time. The market is on a much more solid basis than it has occupied since the beginning of the November boom, and producers have much to encourage them from the outlook. The great danger which threatens the trade, however, is the aptness of speculators to overestimate the probable advance. It is a failing which hundreds possess to imagine because a rise of eight or ten cents a barrel occurs in a short period of time that it must continue indefinitely. It will probably be some months before a sudden jump like that of last fall again transpires, if indeed we are to witness its counterpart during the entire year.

The Forest and Warren region is not yet fully defined, and it is impossible to form a proper estimate of its possibilities as a producing centre; but judging from the result of the Patterson well, so centrally located, and distant from the Reno and other good wells only 200 rods, adds strong testimony to the treacherous character of the sand-rock of the latitude. The Patterson, to which all eyes were turned during the past fifteen days, is reported on good grounds as a total

failure. The Grandin No. 2, at Balltown, is also classed in the same category. Of this venture, however, there are many who express doubts as to the merits of the statements made regarding it. They cling to the belief that the well has not been drilled to a sufficient depth; but as the owners have given out that it is worthless and have, partially at least, abandoned it, there seems no alternative for the trade but to accept it as n. g.

The Butler county, or Bald Ridge field, has not yet offered any serious *revelations*, and until something of greater significance than has yet appeared occurs, it cannot be considered as comprising dangerous characteristics. During the spring and summer to which we hasten this section and Warren and Forest are destined to furnish some territory for the agitation of the drill. The latter, especially, affords considerable room, but judging from all that has appeared, the daily yield of this particular district may find it a difficult task to rise to the dignity of 25,000 barrels a day. Granting it even this, and the yield of the country can hardly be sustained at the point at which it will rest by the first of April next—say 55,000 barrels, or perhaps less. Then where are the 78,000 or 82,000 barrels per day, supposed to be the amount necessary to supply the trade for the year, to come from? These are questions of serious import, and their solution would certainly be interesting to holders of oil.

THE TIDEWATER PIPE TROUBLE.

THERE has been trouble in the house, and it is said "A house divided against itself cannot stand." Whether the Tidewater Pipe Line may be considered in that plight is a matter to be considered. This organization was effected about four years ago in opposition to the Standard lines. It has maintained that attitude or distinction without question ever since, as it has fed the independent refiners of the East with oil whenever it has been within its power so to do. It has been chiefly managed by a board of directors and other officers, of whom B. D. Benson and his partner Mr. McKelvy, A. N. Perrine and D. B. Stewart have constituted the motive power of the association. To the mode of conducting the affairs of the company, pursued by these managers, some of the stockholders have seriously objected, as in the case of E. G. Patterson, who, some time ago, applied for an injunction to restrain them from extending the business of the company beyond the legitimate line of transporting oil. It is, of course, difficult to form a

correct opinion of the real cause of the trouble which has come upon the institution, but judging from what has appeared in print on both sides of the question, there are two parties anxious to "run the machine." The old managers, above named, are supported in their position by a small majority of the stock. The time for election of a new board arrived about the 18th Jan., but the old one was not quite ready for business, whereupon H. L. Taylor, John Satterfield and other members of the Union Oil Company, which represents the other half of the Tidewater stock, proceeded to the office of the latter and held an election of their own. Mr. McKelvy, representing the old board, or Benson party as it is termed, was present armed with proxies sufficient, it is said, to elect the whole crowd; but the privilege of using the proxies being denied him by the chairman of the meeting, the vote counted all on one side—that of the Union Oil Company party. The old managers being defeated, for the time being, raised the Standard war-cry, and had their offices barricaded and all other property guarded, so that it was impossible for the newly-elected to assume control of the business. Meanwhile application was made to Judge Church, of Meadville, for an injunction to restrain the Union party from taking action in the matter. This was granted on Saturday, the 20th Jan., and so ended the strife in that direction for the present. This, in substance, is the story of the struggle in the Tidewater House, but just what the outcome is to be is a matter quite difficult to understand. Some are of opinion that it was an effort on the part of the Standard Oil Company to obtain control of the enterprise, but this the Union men deny, stating that the Standard was as much surprised as the Benson party itself at the *coup d'etat*. However this may be, one thing is positively certain: the Standard has sought to crush the Tidewater at every step the latter has taken since the hour of its inauguration. It is the only formidable foe the great monopoly has to contend with, and the only competitor of the latter for the patronage of producers in the matter of running oil from the wells. It is therefore to be regretted that a difficulty of such magnitude as this should have befallen the Tidewater Pipe Company. No matter how it may result, the credit of the institution has been impaired, though no one acquainted with its workings in the oil country would for a moment doubt its solvency or fear to deliver oil to it for transportation. It is simply a quarrel among stockholders for possession of the reins

of government, and of course the producers who have been protected from what they term extortions of the other lines during the past four years, are beginning to feel and express anxiety as to the possible outcome. For the present, however, and for some time to come, matters will be conducted as heretofore. At the same time the Union people are pushing their claims to possession, and assert that they are fighting a just battle and that they are destined to win in the end.

The Producers' Petroleum Exchange.

THE success which has attended the new Producers' Petroleum Exchange of Bradford, has been much greater than its projectors and supporters dreamed of. The first days clearances were 149,000 barrels and there has been a gradual and steady growth of the business ever since, as will be seen by the table presented elsewhere. It is evident the new exchange is destined to increase in strength and may at some future time become the equal to any petroleum exchange of the Oil Country. It is the intention of the board of directors to proceed to the erection of a suitable structure for its own accommodation, and for that purpose another 25 per cent. assessment has been made upon the stockholders, which will put 75 per cent. of all the capital into the hands of the treasurer to be used in hastening the work. One of the most remarkable features of the new mart is the fact that there has been but two *lay downs* among its members, while at the old Oil Exchange there have been several. It was expected that many mistakes and failures from inexperience of dealers would occur, but the Clearing House Manager, Mr. Willis, states that the fines for errors according to the established rules would not pay the ruling of a page. We cannot but look upon the enterprise as one of the most successful of the kind yet inaugurated in the oil country, and hope to see our prognostications verified at no distant day. If the doors were thrown open for an increase of membership by which all the producers of good standing who desired it could enter on the ground floor, the Producers' Petroleum Exchange of Bradford *would* become headquarters for the purchase and sale of oil at the North.

CHARLES SULLIVAN, the Bald Ridge Oil Co. and Shillings Bros., have each finished a well since the 1st of January, in the Bald Ridge district. They are all fair strikes, i. e. good for fifteen or twenty barrels per day.

THE ALLEGANY FIELD.

TABLE SHOWING THE PROGRESS OF DEVELOPMENTS AND PRODUCTION OF THE ALLEGANY (N. Y.) OIL FIELD.

MONTH.	No. of wells completed.	Dry.	Production, bbls., of new wells.	Average per well.	Average daily Production of Field, Bbls.	Drilling.	Rigs.	Stocks in wooden tanks, Bbls.	Stocks in Iron tanks, Bbls.
Total, 1880	8	42	76	9½	76	4	6	...	...
Jan'y, '81,	4	2	18	9	94	4	5	...	...
February	4	1	24	6	112	4	8	...	...
March	5	2	60	12	162	4	7	...	...
April	3	1	20	10	170	5	6	...	...
May	4	1	48	12	212	20	21	...	...
June	14	8	130	9¼	327	24	35	...	...
July	22	5	275	12½	588	47	57	...	...
August	53	17	586	11	1080	62	68	...	...
September	63	11	910	14½	1740	105	118	...	...
October	96	5	1432	15	2896	164	198	38000	108891
November	154	10	2732	17½	5180	155	200	84666	142216
December	196	2	5115	26½	8937	187	204	180200	169250
Jan. 31, '82,	162	2	3914	24½	11123	191	209	270860	243147
Feb. 28th	189	4	4154	21.97	13200	212	201	373460	258247
March 31st	216	2	5580	25.83	16000	215	221	374490	359347
April 30th	257	6	6356	24¾	20760	226	230	400000	417347
May	265	7	5992	22⅝	22438	179	191	440000	542347
June	163	11	3605	12	22220	94	153	475000	650000
July	81	1	1488	18½	19391	45	123	375000	550000
August	60	6	1199	20	17650	34	98	295927	550000
September	29	3	435	15	16320	39	58	275610	540000
October	45	3	660	4½	14802	70	51	...	...
Nov. . .	75	7	983	13½	12900	67	82		
Dec. . .	63	2	722	11½	11600	54	66		

CONGLOMERATE.

THE Corry City Iron Works manufactured the large boiler for the new Bradford furniture factory.

BALD RIDGE, Butler county, is destined to play quite an important part in the work of supplying the world with cheap light.

WE do not believe it possible to abolish speculating in theatre tickets, for the simple reason that it is encouraged by the patronage of the public. If the public would stop buying from speculators, they would "disappear serenely" from the sidewalk, and not quickly reappear. Once Mr. Lester Wallack, after in vain seeking legal protection, tried to drive the ticket speculator away from his theatre by personally advising his patrons to buy at the box-office, circulating about the front, and speaking to everyone as soon as the speculator appeared. One night a gentleman said: "Thank you very much, Mr. Wallack, but I had rather pay this man his bonus than to take my place in the line, or leave my business in the day. I regard him as an accommodation." Mr. Wallack says he made no more attempts after that.—N. Y. Music and Drama.

THE PETROLEUM AGE sent prepaid to any part of the world for \$4.00 per year.

PRODUCTION TABLE.

SHOWING THE TOTAL DAILY NET YIELD OF THE PENNSYLVANIA OIL FIELD FROM SEPTEMBER, 1859, TO NOVEMBER 30th, 1882, IN BARRELS OF 42 GALLONS EACH.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals.
1859									10	15	18	28	2,173
1860	30	50	89	215	500	1,000	2,000	2,500	3,000	3,500	2,000	3,000	547,439
1861	3,201	4,041	4,800	5,400	6,000	6,100	7,100	8,500	7,000	5,150	5,514	6,716	2,119,045
1862	6,000	5,300	7,400	8,000	9,400	9,000	8,500	11,000	13,000	10,565	8,053	7,238	3,153,183
1863	6,200	6,400	7,000	5,500	6,000	7,603	7,022	8,100	9,200	7,120	9,500	10,260	2,667,543
1864	8,100	6,300	4,500	5,000	7,000	5,100	5,600	5,700	7,180	5,545	10,100	10,320	2,215,150
1865	5,900	5,800	5,000	7,500	8,000	8,000	7,400	6,350	6,400	6,800	7,600	9,350	2,560,200
1866	9,200	9,100	5,000	7,100	8,100	9,500	9,350	9,440	12,000	10,400	11,000	11,165	3,385,105
1867	10,900	8,100	9,000	10,100	10,500	9,000	10,100	10,000	10,100	7,660	9,155	8,313	3,458,113
1868	8,200	9,400	8,100	9,300	11,000	12,400	13,000	11,800	10,250	8,225	7,580	7,150	3,540,670
1869	8,100	8,500	10,000	11,000	13,000	13,000	13,560	13,000	13,500	12,500	11,200	10,625	4,186,475
1870	11,348	11,802	11,509	12,400	15,990	13,400	13,800	15,950	18,203	18,000	17,061	15,990	5,308,046
1871	13,500	13,300	13,032	12,950	13,054	13,882	14,900	15,866	15,555	15,889	15,599	15,841	5,278,072
1872	17,943	17,894	15,680	16,221	17,402	12,140	16,933	17,440	16,598	18,450	25,942	20,630	6,505,774
1873	20,550	21,460	21,830	22,260	24,632	26,361	23,406	30,900	32,500	31,343	33,584	34,680	9,849,508
1874	32,800	30,940	29,760	28,104	29,442	31,222	33,987	32,000	29,461	29,944	29,231	28,101	11,102,114
1875	27,900	26,509	26,012	23,009	23,000	23,805	24,991	23,940	23,800	23,900	23,821	23,594	8,948,749
1876	23,102	25,440	13,560	23,800	24,628	24,400	24,890	25,300	25,900	26,400	26,500	25,900	9,142,940
1877	26,930	27,560	28,860	32,060	36,000	37,440	39,210	42,100	41,321	41,200	39,900	40,120	13,230,330
1878	39,200	39,900	39,200	40,100	41,111	40,820	41,200	42,900	43,999	44,480	45,200	43,900	15,272,491
1879	44,000	43,830	47,960	50,810	52,911	55,600	56,911	59,940	61,498	60,980	58,750	58,231	19,835,903
1880	59,982	63,890	66,215	68,063	72,080	73,104	73,794	74,980	71,941	77,491	76,112	74,080	26,086,692
1881	73,030	69,060	73,900	75,245	79,000	82,460	81,900	79,100	78,231	77,971	77,892	76,642	28,136,353
1882	75,028	74,910	74,751	76,690	78,601	80,469	90,020	98,739	79,685	72,805	59,513	66,980	28,452,834
Total twenty-four years to December 31st, 1882.....													215,984,901
Average per day for twenty-four years.....													24,541
Average per day for 1882.....													77,950

Table Showing Total Production of Crude Petroleum in Pennsylvania and New York Oil Fields, and Consumption—From 1859 to 1881, Inclusive.

Year.	Oil Creek Division. Bbls.	Pithole District Bbls.	Tid'ute and Fagundas District Bbls.	Central All'g'ny Divis'n. Bbls.	Butler, Armstr'g & Lower Alleghany Bbls.	Clarion Division Bbls.	Bradford Division Bbls.	Bullion District Bbls.	Warr'n Div. Bbls.	Beaver Div. Bbls.	Alleg. Co., N. Y., Div. Bbls.	Yearly Total. All Districts. Bbls.	Con- sumption. Bbls.	Yearly Average Price.
1859	2000											2000	500	20.00
1860	500000											500000	300500	9.60
1861	2113609											2113609	1280000	.49
1862	3056690											3056690	1472000	1.05
1863	2611309											2611309	1992800	3.15
1864	2216109											216109	1946620	9.87½
1865	1585200	912500	20500									2518200	2238610	6.59
1866	2302700	1095000	490000									3887700	2574401	3.74
1867	2393300	814000	839900									4047200	2960561	.41
1868	2672617	445500	729000	26000								3873117	3404645	3.62½
1869	3462500	365000	535000	22500	45000							4430000	3716341	5.63½
1870	2745528	173585	723838	713150	918644							5274745	4562642	3.89
1871	2040263	182054	697887	1083386	1091458	310293						5405341	5178038	4.34
1872	1429685	145065	847199	881140	2658080	829079						6790248	5954742	3.64
1873	1094389	119864	895983	851934	4402563	2526231						9890964	7847953	1.83
1874	734247	55770	373325	564978	5160265	3921261						10809852	7875145	1.17
1875	504639	35130	351407	343905	4712702	2821214	18509					8787506	9256416	1.35
1876	611884	37450	354284	333640	4755623	2377700	382768	64220	51337			8968906	10414877	2.56½
1877	734858	60380	312700	474262	5431072	3021120	1465451	1306342	151371	62085		13019641	11977107	2.42
1878	686948	60000	308780	363710	4552815	2276408	6482400	505265	108300	92490		15437116	13783672	1.19
1879	389400	36500	227900	285652	2876787	1438342	14268945	289591	45550	82100		19913767	16851222	.85½
1880	335342	36500	168542	166143	1737969	868984	22343202	146672	91655	102956		25997965	18228905	.94½
1881	293504	31938	146474	145374	1394706	844442	22817975	128338	438000	102956	607106	26950813	21263740	.85¾
	34516721	4706236	7022719	6228774	38737684	21235080	67779250	2440428	886213	442587	607106	186502798	155081437	3.92½

THE PETROLEUM AGE for January is out and is valuable to the trade. Its pages show much careful and conscientious work, and the labor of compilation is well performed. This number is well worth careful preservation.—Exchange.

THE January number of the PETROLEUM AGE is a choice production. The magazine should be in the hands of every person interested in oil, as it furnishes a mass of useful information in the most compact form.—Exchange.

SHIPMENTS.

Shipments of Crude and Refined, in Barrels of 42 Gallons each, reduced to Crude Equivalent out of the Producing Regions in the years named.

YEAR.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals.
1859.	900	1,200	2,500	4,640	11,000	21,000	58,500	64,300	79,000	78,400	63,400	1,200	1,700
1860.	54,800	49,600	68,410	95,300	184,000	189,000	200,000	210,000	263,000	184,000	76,321	38,400	423,240
1861.	98,212	93,101	103,760	201,430	256,320	385,211	375,440	376,311	401,210	406,500	213,611	75,282	1,650,133
1862.	171,132	104,958	148,380	288,994	456,211	428,282	213,443	281,400	398,211	204,441	281,340	190,463	3,141,521
1863.	148,324	101,431	96,480	132,486	125,218	221,386	110,490	101,218	228,430	220,386	201,441	154,765	3,242,951
1864.	121,386	94,803	103,201	122,222	140,301	338,403	184,231	115,821	231,402	228,321	215,262	204,779	2,100,132
1865.	132,200	121,320	180,206	260,231	280,320	390,260	200,410	290,210	390,431	318,616	210,016	236,701	3,010,921
1866.	123,460	123,321	165,230	250,830	300,210	360,311	210,410	320,210	384,206	300,102	280,013	132,807	2,883,210
1867.	150,220	144,201	200,410	280,430	310,408	400,046	310,260	250,214	450,200	480,860	280,260	265,377	3,482,510
1868.	200,026	160,320	240,210	260,406	340,318	400,601	410,707	516,679	542,217	557,624	519,780	249,896	3,623,521
1869.	360,933	312,910	354,400	390,003	407,908	418,516	541,137	528,134	551,075	505,071	480,977	444,254	5,235,931
1870.	437,691	347,718	383,890	428,512	587,375	501,754	541,338	621,954	591,607	607,468	477,940	430,786	5,664,791
1871.	476,966	407,606	276,220	428,512	510,417	529,228	814,449	864,768	952,955	1,010,852	959,589	925,443	9,499,775
1872.	573,124	527,440	668,374	803,409	708,176	815,413	940,281	793,865	1,014,570	543,341	546,117	602,348	8,821,500
1873.	843,663	501,220	518,246	729,581	809,027	921,862	1,228,530	882,089	1,154,549	524,190	871,066	1,100,983	10,164,443
1874.	435,095	327,776	693,918	603,037	646,150	1,391,124	1,006,951	1,425,942	1,563,797	1,268,971	1,205,634	600,019	12,832,578
1875.	677,289	519,193	623,762	846,636	960,894	1,135,119	1,330,454	1,655,651	1,434,225	1,747,390	1,281,410	992,688	13,476,000
1876.	743,461	484,904	741,512	903,526	1,234,324	1,135,119	1,330,454	1,655,651	1,434,225	1,747,390	1,281,410	992,688	13,476,000
1877.	775,791	702,729	973,879	1,136,188	1,331,469	1,369,314	1,625,035	1,808,238	1,627,120	1,662,269	1,453,645	1,542,585	15,896,469
1878.	663,998	1,395,151	1,613,371	842,268	1,095,259	975,083	1,231,611	1,304,129	1,252,635	1,665,933	1,226,030	1,335,613	15,587,447
1879.	1,650,409	915,028	1,276,740	1,348,398	1,563,436	1,729,697	1,925,552	2,214,877	2,031,950	2,080,467	2,069,641	2,014,655	20,232,038
1880.	1,001,617	1,829,779	1,729,237	1,751,294	1,843,455	2,261,172	2,239,591	2,078,903	2,003,184	2,092,577	1,406,880	1,140,462	22,192,024
1881.	1,817,973												
1882.													

EXPORTS OF PETROLEUM—NOVEMBER, 1882.

FOLLOWING is the official showing of Joseph Nino, chief of the Bureau of statistics, Washington of Petroleum Exports for the 11 months of 1882, as compared with 1881. The principal ports or customs districts are Boston, New York, Philadelphia, Baltimore, San Francisco.

	CRUDE. Gallons.	NAPHTHAS. Gallons.	ILLUMINAT'G. Gallons.	LUBRICATING. Gallons.	RESIDUUM. Gallons.	TOTAL. Gallons.
Total for eleven months ending November 30, 1882.	41,605,778	15,743,749	404,020,099	7,863,804	4,485,390	473,718,720
Total for eleven months ending November 30, 1881.	37,967,061	19,679,712	403,917,769	4,637,465	3,108,840	469,310,847

It will be observed that there has been a marked decline in the amount of each product that has been shipped, except Napthas. Those however, who estimate the trade for 1883 by the result of 1882 are liable to be led into serious error. A falling off during one season does not by any means indicate a decline in the foreign demand. The shipments abroad during 1881, were much larger than usual, and stocks abroad became somewhat swollen. Then moreover, the opinion was obtained abroad, that there has been an effort on the part of producers to fictitiously bull the crude market beyond the limits of reason, and for that reason foreign dealers have withheld from the market expecting a serious drop after the bubble has burst.

STATEMENT made by the United Pipe Lines July 10th, 1880, and enlarged to November 30th, 1882. It gives gross stocks, sediment and surplus, net stocks, outstanding balances, receipts (or runs) from all sources, and total deliveries, or shipments :

	Gross Stocks.	Sediment and Surplus.	Net Stocks.	Outstanding Acceptances.	Credit Balances.	Receipts from all Sources.	Total Deliveries..
1877—April	1,895,153.71	77,386.70	1,817,767.01	449,640.14	1,368,126.87	200,570.81	125,797.90
May	1,762,602.64	75,363.87	1,687,237.77	663,663.71	1,003,574.06	493,200.58	619,612.26
June	1,596,367.68	81,255.42	1,488,112.26	661,786.57	826,325.69	538,906.95	737,609.77
July	1,482,433.51	81,741.50	1,400,692.01	667,166.36	733,625.65	615,145.46	699,476.18
August	1,489,052.53	81,144.63	1,407,907.90	643,281.46	764,626.44	673,403.04	666,144.28
September	1,339,032.27	67,163.68	1,271,868.59	552,676.26	719,192.33	625,225.37	769,745.57
October	1,434,728.78	46,771.99	1,387,956.79	673,850.05	714,106.74	687,094.59	570,092.71
November	1,691,399.52	39,418.00	1,651,981.52	657,591.36	994,390.16	913,644.19	649,242.70
December	2,830,413.36	68,729.63	2,761,685.73	754,338.25	2,007,347.48	1,656,150.37	506,332.99
1878—January	3,124,641.15	72,453.43	3,052,187.72	864,711.41	2,187,476.31	872,681.18	715,149.78
February	3,439,526.98	82,452.66	3,357,074.32	1,404,292.13	1,952,782.19	1,030,688.44	720,478.14
March	3,940,000.65	92,963.06	3,847,037.59	1,487,430.50	2,359,598.09	1,196,251.26	701,681.27
April	4,335,274.84	133,935.76	4,201,340.08	1,615,791.19	2,585,548.89	1,137,359.40	778,050.53
May	4,609,681.45	150,117.76	4,459,563.69	2,065,333.31	2,394,230.38	1,104,352.40	843,081.33
June	4,719,699.25	181,800.03	4,537,899.22	1,950,420.81	2,587,478.41	1,092,604.02	1,004,474.55
July	4,885,851.72	229,080.78	4,656,770.94	2,078,466.56	2,578,301.38	1,258,648.45	1,108,074.33
August	4,571,658.59	217,085.19	4,354,573.40	2,064,590.75	2,289,982.64	1,195,268.67	1,496,009.04
September	4,410,061.84	225,088.86	4,184,972.88	2,705,853.95	2,479,119.03	1,182,118.57	1,318,265.33
October	4,072,267.43	234,050.89	3,838,576.54	1,517,484.27	2,321,092.27	1,271,174.73	1,564,984.43
November	4,083,972.42	216,655.30	3,867,317.12	1,784,443.35	2,082,873.77	1,159,623.71	1,129,047.42
December	4,098,200.92	201,470.30	3,896,730.62	1,741,311.07	2,155,419.55	972,338.83	924,035.93
1879—January	4,759,031.41	182,707.80	4,576,323.61	2,153,763.83	2,422,559.78	1,231,237.19	546,271.74
February	5,157,646.15	171,689.80	4,985,956.35	2,346,238.22	2,639,718.13	1,055,377.95	643,828.71
March	5,503,768.71	190,797.91	5,312,970.80	2,484,861.83	2,828,088.87	1,363,512.17	1,029,029.70
April	5,885,675.24	211,957.06	5,673,718.18	2,644,301.36	3,029,416.82	1,379,349.76	1,015,482.04
May	6,180,843.53	315,992.98	5,864,850.55	2,522,846.36	3,342,364.19	1,488,514.31	2,228,043.27
June	6,426,802.45	334,457.29	6,092,345.16	2,959,921.12	3,132,424.04	1,437,250.90	1,204,557.54
July	6,419,699.08	323,295.32	6,096,403.76	2,323,575.29	2,772,828.47	1,472,651.01	1,465,518.05
August	6,380,606.63	300,345.15	6,078,261.48	3,581,224.03	2,497,037.45	1,714,620.11	1,728,940.81
September	6,589,859.83	325,363.85	6,264,995.98	3,783,480.38	2,481,015.60	1,691,863.41	1,455,811.45
October	6,701,209.87	299,393.67	6,401,816.20	3,788,155.65	2,613,660.55	1,646,725.06	1,502,991.20
November	6,951,133.67	303,641.17	6,647,492.50	3,927,300.18	2,675,192.32	1,600,961.29	1,328,621.19
December	7,362,409.76	294,571.37	7,067,838.39	4,235,459.40	2,832,378.99	1,771,781.24	1,331,822.12
1880—January	7,735,257.38	295,517.60	7,439,739.78	4,436,788.55	3,002,951.25	1,832,963.04	1,145,194.98
February	8,187,012.49	322,568.93	7,864,443.56	4,602,286.49	3,262,157.07	1,607,663.89	1,178,111.92
March	8,621,097.49	351,130.35	8,969,967.14	4,811,894.33	3,458,072.81	1,815,133.31	1,396,037.88
April	9,662,354.59	388,558.16	9,273,766.43	5,846,536.60	3,427,259.83	1,739,297.37	723,794.73
May	10,306,078.79	454,193.73	9,851,885.06	6,361,320.05	3,490,565.01	1,552,240.91	975,061.26
June	11,266,771.77	477,431.60	10,789,340.08	7,397,131.89	3,392,208.19	1,781,937.29	848,339.08
July	12,039,010.00	475,446.56	11,563,563.44	8,125,241.25	3,438,332.19	1,890,161.44	1,095,528.25
August	12,749,623.28	462,987.28	12,286,636.00	8,635,394.80	4,651,241.20	1,904,452.70	1,177,448.42
September	13,618,276.03	382,398.71	13,236,327.32	9,287,193.94	3,949,133.38	2,075,105.26	1,115,184.71
October	14,020,877.32	391,331.55	13,629,545.84	9,448,615.77	4,180,930.07	1,999,487.98	1,598,285.06
November	14,656,891.55	341,262.67	14,315,628.88	10,038,824.08	4,231,804.80	1,859,991.50	1,064,146.39
December	15,369,758.67	361,184.83	15,008,573.84	10,913,283.49	4,095,290.35	1,987,283.54	1,207,928.35
1881—January	16,291,307.87	360,688.98	15,930,618.89	11,672,583.61	4,258,035.28	1,876,526.50	931,818.71
February	17,355,485.31	391,616.47	16,936,868.84	12,029,594.35	4,934,274.49	1,823,713.46	781,745.93
March	18,488,476.94	432,304.19	18,056,172.75	13,099,262.44	4,956,910.31	2,222,812.39	1,116,695.11
April	19,560,752.23	517,422.38	19,043,329.85	13,846,285.20	5,197,044.65	2,182,636.96	1,183,779.02
May	20,591,177.33	640,662.03	19,950,455.30	14,608,124.70	5,342,330.60	2,278,582.78	1,356,688.23
June	21,397,698.53	756,412.85	20,641,285.68	14,738,828.77	5,902,456.91	2,318,445.18	1,545,448.13
July	21,982,161.42	774,402.94	21,207,758.48	15,150,267.23	6,057,131.25	2,396,472.50	1,756,044.15
August	22,474,105.51	800,343.43	21,673,762.18	15,240,553.15	6,433,209.03	2,527,888.69	2,013,844.67
September	22,727,740.61	820,434.43	21,907,306.18	15,626,283.11	6,281,023.07	2,233,085.37	1,900,251.83
October	23,212,951.99	801,243.43	22,431,708.56	16,408,030.46	6,023,678.10	2,452,428.66	1,803,052.62
November	23,303,782.34	746,980.08	22,556,744.26	16,407,354.48	6,149,389.78	1,995,895.38	1,742,462.86
December	23,802,966.20	775,000.00	23,087,966.20	16,496,380.40	6,234,291.37	2,255,252.50	1,696,068.64
1882—January	24,243,382.26	762,111.53	23,481,270.73	17,788,245.97	5,693,024.76	1,984,325.23	1,547,945.23
February	24,704,933.81	765,000.00	23,939,933.81	18,541,340.52	5,831,402.36	2,062,742.98	1,601,191.43
March	25,663,298.81	887,210.88	24,776,087.93	19,039,760.73	5,736,327.20	2,305,538.30	1,453,354.46
April	26,519,252.22	993,150.92	25,526,101.30	19,963,183.00	5,562,918.30	2,145,965.63	1,381,093.10
May	27,518,619.53	1161,789.36	26,356,830.17	20,622,520.38	5,734,309.79	2,339,170.39	1,496,566.23
June	28,311,328.53	1344,852.60	26,966,475.93	21,282,495.62	5,683,980.31	2,419,934.81	1,796,712.55
July	28,955,781.79	1330,493.28	27,625,288.51	22,037,273.31	5,588,015.20	2,599,606.49	1,982,695.57
August	30,198,208.64	1370,660.62	28,827,548.02	22,094,815.90	6,732,732.10	3,176,053.39	1,870,745.07
September	31,068,182.32	1473,646.07	29,594,536.25	23,824,360.13	5,770,176.12	2,569,036.25	1,799,316.21
October	31,390,694.71	981,249.05	30,409,445.66	24,031,440.00	5,647,240.00	2,369,517.35	1,834,217.13
November	31,900,475.68	894,397.98	31,006,077.70	25,722,724.08	5,283,353.62	1,970,991.00	1,157,166.36
December	33,472,761.77	1,054,108.94	32,418,651.83	26,423,935.50	5,994,716.33	1,811,882.59	1,142,218.09

THE PETROLEUM AGE.

VOL. II.

BRADFORD, PA., FEBRUARY, 1883.

No. 3

THERE are 3,000 wells in the Bradford field which are said to yield less than as many barrels a day.

THE Producers' Petroleum Exchange is about to purchase a lot upon which it contemplates the erection of a fine brick structure.

SPECULATION in oil has not yet fairly commenced. Wait till \$1.75 is sounded through the corridors of the oil exchanges.

HON. W. J. HULINGS is one of the most substantial representatives the oil country has ever had in the law-making establishment of the State.

THE Forest county field is about defined except in the Balltown section. There will undoubtedly occur some extensions in that latitude, but Forest county has no staying sand.

SOUTHERN OHIO oil territory is attracting some attention, and may some day become of sufficient importance to demand the presence of a few of the wildcatters who have prowled over the Pennsylvania region to the damage and distress of all concerned.

FOREST COUNTY does not promise wonderful things in the work of increasing petroleum stocks. The entire district from Sheffield to Balltown does not yield 1,600 barrels a day. The problem of where the oil is to come from to make good the decline of Bradford and Alleghany still remains unsolved.

THE article printed in the first part of this book, taken from the Oil and Colourman's Journal of London, is somewhat "colored" in tone. The writer of it assumes altogether too much. He guesses at probabilities and speculates to a considerable extent in possibilities, and drops down at the ending on to the cold "if." If it were not for certain obstacles Russia might some day become an interesting competitor in the petroleum trade, but America may have become completely exhausted before the "if" has been removed.

THE TORPEDO WAR.

THE ROBERTS Torpedo monopoly in its attempt to have Congress extend its patent, which expires in May next, is meeting with considerable opposition by producers of oil. Numerously-signed remonstrances have been forwarded to the government, and a stout resistance to the extension will be made. The Roberts company has become very wealthy through the agency of the power given it by the torpedo patent. It has been sustained in its exactions of producers in all instances, and these exactions have become exceedingly burdensome. The company has claimed the use of glycerine as an explosive in wells, and for nearly a score of years has pursued those who have dared to trespass upon these rights, to the death. Operators have been dragged to Pittsburg on warrants of the U. S. Courts for infringement violations, and have suffered financially quite severely for their audacity in daring to use the compound without the knowledge and consent of the company. Spies and spotters have been kept on the trail of the producing trade, and when these have failed to accomplish the purposes bribery has been resorted to without stint. We say bribery, for it can be termed nothing less when the men who have been employed outside the Roberts company to explode the stuff have been sought out and paid to "give up" the names of their employers. Thousands, and it might perhaps be said millions of dollars, have been extorted from producers in this manner, for when the Roberts company obtains sufficient evidence to substantiate a cause, the producer is compelled to pay a second time for all the shots privately used. That is, he is compelled to pay or stand a suit at law in the U. S. Courts, and the former is more suitable to his taste. To this deplorable condition of affairs the trade now prays there may soon be an ending. It cannot be possible that an intelligent body such as comprises our great United States government will re-enact in favor of such oppression. It has not been shown by any process that the Roberts patent was ever entitled to superiority over others, but the power of money in the courts has done much toward sustaining it, and it is now to be hoped that the war already begun will not cease without victory to the producers' cause.

THE VALUE OF OIL.

OIL is now selling far below its legitimate worth, and why? This is the question that puzzles everybody. Judging from the present outlook production should sell at not less than \$1.50 or \$2.00 a barrel. But there is a reason and one that seems tolerably well grounded, and it can be given by propounding a second proposition in some such words as these: What hazard does a capitalist assume who invests his means in oil at the present time? The answer, of course, as above cited, judging from all conditions of the producing centres, would be, "None at all." But suppose after the trade has decided in its mind that the country is soon to become exhausted of the precious liquid, it wakes up some fine morning to learn by the morning paper of the discovery of a rich and extensive scope of territory somewhere within the limits of the great belt. What then? Who, of even the producers themselves, would be willing to hold their production for better prices? Not one. Their action at every turn of the wheel, during the past six months, when a new well was brought to the front, gives the negative to the proposition. It will be all the better for the trade that a gradual advance occurs, as it doubtless will. Violent fluctuations are not as healthy as a steady and gradual movement upward, which must of necessity ensue, provided a set-back such as indicated above does not interfere. The chances now seem two to one in favor of improvement, and when capital is invested on such grounds there is certainly a good showing for reward. But in a business of such a changeable character there is nothing that can be termed sure or certain, and it is for this reason that prices are not driven to the point, at which they properly belong, with greater velocity.

BLACKMAR VS. SCOFIELD.

IF TIME CONTRACTS for the purchase and sale of oil are worthless, what contract can be made binding? The time has arrived in oil speculations when it should be established whether trading in the article is fraudulent or otherwise. The word "Oil" seems to have a peculiar "halo" about it. It shines out in a very mysterious manner to some people in the oil country as well as to the judges of courts. It is altogether too silly and childish—it matters not who entertains the views—that dealing in oil is not as legitimate as dealing in any other commodity produced on the earth or in the heavens.

A man of capital puts a written agreement into the hands of a broker for the purchase or sale of a quantity of oil, to be delivered or received at a certain fixed time in the future, and when that time arrives one or the other of the parties to the contract refuses to perform the requirements thereof for no other reason than that the price of the commodity does not agree with his wish and pocket-book. These contracts are made by the score throughout the oil region, and are, or at least should be, as binding as any other contract or agreement entered into. Imagine a dealer in coal agreeing in writing to deliver twenty-five tons of coal at a stated time sometime in the future, say sixty days, and at the expiration of the time he finds the market against him and refuses to perform his part of the agreement. An oil contract is similar and should be as binding as any other contract or agreement, without exception, into which parties may enter. Notwithstanding this there exists a fallacious idea among many responsible parties that an oil contract is invalid, no matter whether in writing or otherwise. Judging from a case that has recently arisen in this city, if the respondent be safe from the judgments of the law, better declare the whole oil trade a fraud, and all agreements for the delivery of oil or any other commodity throughout the region sham and lawless proceedings. A dealer—Mr. H. R. Blackmar—sold in December last, under contract in writing, 25,000 barrels to be delivered on or before the sixth day of February, 1883, at \$1.25 a barrel, C. W. Scofield, of Jamestown, N. Y., being the purchaser. On the date named the oil was tendered according to contract, but was refused ostensibly on the grounds that such contracts are not binding, but the actual reason being that the highest price of oil on that day was only \$1.04½. Had the price been \$1.50, as doubtless the purchaser expected at the time of making the contract, it is not unlikely that he would have been a prosecutor in a case for damages against Blackmar, in case of the latter's refusal or failure to comply with the terms of the agreement. The result of the case will be awaited by the oil fraternity with much interest. The difference has been established by the sale of the oil, and proceedings commenced for its collection.

THE Forest Oil Company, on the Cooper tract, have a new producer of the 300-barrel species, but it opens nothing new and is unimportant to the trade.

THE SITUATION IN FEBRUARY.

THE BUSINESS for January was what might be termed a "stand-off" on the December returns. The only section of all the producing fields that has attracted serious attention is that of Forest county. Notwithstanding there has transpired an enormous depreciation in the production of all the old districts, and a great falling off in the supply of the Cooper tract spouters, yet the appearance of one wildcat in the Balltown section, of unknown calibre, was sufficient to envelop the trade with a cloud of despair and terror, and cause a rapid decline in values of about five cents per barrel, which occurred on the twelfth instant. There evidently exists grave doubts in the minds of speculators as to the inability of Forest county to largely increase the supply; otherwise the oil offered at \$1.00 a barrel or less would certainly be taken.

Producers wonder that they cannot obtain more for their production. They behold the evidences all over the region of speedy decay, and in the face of this fact the boiling-over-the-casing-head of one wildcat well sends the market reeling, and they reel with it. They are as easily panic-stricken as the speculator. They should therefore cease wondering at the situation, and decide that they are getting all for their product that they are entitled to, though it is by no means what it is actually worth.

It is quite clear that the daily yield has fallen below the actual consumption, and regardless of the present unfavorable condition of shipments stocks are being drawn upon somewhat.

The total average yield of the various districts for the month of January was as follows:

DISTRICT.	JANUARY. Barrels.
Bradford	35,200
Allegany	11,900
Warren, Forest and Cherry Grove	6,500
Lower Country	9,000
Total	62,600

The same show a further depreciation February 12th, and no apparent increase in operations. The yield is as follows:

Bradford	33,940
Allegany	11,000
Warren and Forest	6,000
Lower Country	8,600
Total	59,540

AN oil well drilled on the flats at Petrolia, Ont., about fifteen or sixteen years ago, and which has been abandoned for many years, commenced to flow of its own accord the other day, and ejected the fluid at the rate of about one barrel an hour. As soon, however, as the accumulation worked off it weakened.—Topic.

REPORT OF OIL OPERATIONS FOR JANUARY.

WELLS COMPLETED.

DISTRICT.	WELLS.	PRODUCTION.	DRY.
Bradford	30	381	1
Warren and Forest	19	1380	2
Lower Field	16	222	3
ALLEGANY—			
Alma	2	18	1
Bolivar	22	278	1
Wirt	1	12	—
Genesee	22	269	1
Clarksville	3	20	1
Scio	10	108	2
Totals	125	2688	12
Totals, December	122	2297	10

WELLS DRILLING.

DISTRICT.	RIGS.	DRILLING.	TOTAL.
Bradford	32	42	74
Warren and Forest	18	14	32
Lower Field	20	16	36
ALLEGANY—			
Alma	12	9	17
Bolivar	14	15	29
Wirt	2	3	5
Genesee	22	24	46
Clarksville	—	3	3
Scio	10	6	16
Totals	131	127	258
Totals, December	127	140	267

The total shipments for January, 1883, is as follows:

	BARRELS.
For January	1,369,010
For December	1,149,462
Increase, January	228,548

THE Forest field is losing its grasp upon the trade, but there is considerable oil there all the same. The Grandin well at Balltown is said to be still yielding over 250 barrels a day, in which case it may be proper to state that other wells of equal proportions will probably be found in the vicinity. As heretofore stated, however, it is not likely that the whole region from Kinzua to Clarion will ever make half the yield of Bradford in its palmy days.

On the 9th instant the Solar Oil Works of Buffalo became the property of the Tidewater Pipe Company, an event that awakened no little interest in refining centres. The works were to have been sold on the 10th instant under a mortgage foreclosure which mortgage was held by a member of the Standard Oil Company. What the Tidewater intends doing with these works is a mystery, unless it extends its pipe line from Bradford. The works have a capacity of 500 barrels per diem and are in first-class order.

THE PETROLEUM AGE for December comes out rather late, owing to unavoidable causes, but as good as ever. The contents are well edited and full of interest to the trade.—Bradford Era.

RUNS, DELIVERIES, STOCKS.

TABLE showing the December and January Pipe Line runs and shipments, with stocks, on January 31st, 1882—official. Each barrel 42 gallons :

RECEIPTS,		BARRELS.	BARRELS.
DISTRICT.	Pipe.	December.	January.
Bradford	United		
Tidiotte & Titusville	"		
Lower Country	"		
Monongahela	"		
Total		2,103,995 86	1,811,822 59
Bradford	Tidewater	217,896 50	195,865 40
Titusville	Octave Oil Co.	3,788 17	3,373 00
Oil City	Charley Run	325 84	370 54
Shaffer	Shaffer Run	495 25	583 00
Franklin	Franklin Pipe	8,348 28	6,860 33
Total all Lines		2,244,849 90	2,018,874 86

Average per day, January	65,124.99
Average per day, December	72,413 54
Average per day, November	73,098 09
Average per day, October	85,227 24
Average per day, September	96,079 68
Average per day, August	111,243 38
Average per day, July	95,192 11
Average per day, June	95,522 95
Average per day, May	85,563 08
Average per day, April	80,093 79
Average per day, March	83,724 96
Average per day, February	83,547 40
Average per day, January	71,855 43

Deliveries.		December.	January.
DISTRICT.	PIPE.		
All Points	United	964,908 48	1,142,118 09
Titusville	Octave Pet. Co.	2,889 46	3,637 20
Franklin	Franklin Pipe	5,554 41	5,649 06
Shaffer	Shaffer Run	95 36	95 86
Oil City	Charley Run		
Bradford	Tidewater	156,005 10	206,600 11
Total deliveries		1,129,452 81	1,358,100 32
Amn't of runs in excess of Shipments		1,115,396 09	660,774 50

		Net Stocks, Dec. 31. Barrels.	Net Stocks, Jan. 31. Barrels.
DISTRICT.	PIPE.		
Oil City	Charley Run	3,844 21	3,864 30
Bradford	Tidewater	2,490,424 85	2,478,658 23
All Districts	United	31,790,241 74	32,418,651 83
Shaffer	Shaffer Run	27,441 60	27,388 23
Titusville	Octave Oil Co.	5,775 94	5,436 13
Franklin	Franklin Pipe	17,452 24	18,663 51

Total January	34,952,662 23
Total December	34,335,180 58
Total November	33,604,841 36
Total October	32,210,533 76
Total September	31,253,074 61
Total July	30,157,021 20
Total June	29,540,517 47
Total May	28,833,715 51
Total April	27,969,884 48
Total March	27,252,806 93
Total February	26,414,274 36
Total January	25,788,071 79

Increase, January	617,481 65
Increase December	730,239 22
Increase, November	838,195 69
Increase October	556,111 91
Increase September	957,485 53
Increase, August	1,096,026 41
Increase, July	616,503 73
Increase, June	706,801 96
Increase, May	863,631 03
Increase, April	717,077 55
Increase, March	838,532 57

Average increase per day, January	19,918.76
Average increase per day, December	23,556 10
Average increase per day, November	18,537 06
Average increase per day, October	27,823 88
Average increase per day, September	27,874 64
Average increase per day, August	35,355 69
Average increase per day, July	19,887 21
Average increase per day, June	23,902 58
Average increase per day, May	27,859 06
Average increase per day, April	23,902 58
Average increase per day, March	27,049 44
Average increase per day, February	22,364 00
Average increase per day, January	12,174 73

THE Grandin well, on Porcupine Run, Forest county, was drilled into the sand on the 15th of February, the date of the issue of this book. It is reported showing for a very good well, and if so opens quite a scope of territory in the direction of the Cooper tract from Balltown.

JANUARY OFFICIAL QUOTATIONS FOR CRUDE.

THE following table shows opening, highest, lowest, and closing quotations at the Oil Exchange each day; also average for the month :

	Opening.	Highest.	Lowest.	Closing.	Avg.
2	92	94 1/4	87 1/2	89 1/4	90 3/8
3	89 1/4	89 1/4	84 3/8	85 3/4	86 7/8
4	85 1/2	87 1/4	83 3/8	85 3/8	85 1/2
5	85 3/8	88	85	87	86 1/2
6	87	90	86	88 1/2	88
8	88	89	83 1/4	88 1/4	86 1/4
9	90 1/2	92	89	89 1/2	90 1/4
10	89	94	86 1/2	90 3/8	90 1/4
11	87 1/2	90 1/4	87 1/2	90 1/4	89 3/4
12	90 1/8	91	89 1/8	90	90 3/8
13	89 3/8	89 3/8	89 1/2	89 3/4	89 1/2
15	90	92 1/2	90	91 3/8	91 1/4
16	91 1/4	92 1/4	91 1/4	91 3/4	91 3/8
17	91 1/4	92 1/4	91 1/4	91 1/2	91 3/8
18	91 1/2	91 3/8	89 3/4	89 3/4	90 3/8
19	90	90	88 1/4	79 3/8	89 3/8
20	89 3/8	90 1/8	89 1/4	89 3/8	98 3/4
22	89 7/8	94 1/4	89 7/8	94 1/8	87
23	94	94 1/4	92 1/2	93 3/8	93 3/8
24	93 3/8	100	93 1/4	100	96 5/8
25	102 1/4	106 1/4	101 3/4	104 5/8	104
26	105 1/2	106 1/4	102 1/2	103	104 1/2
27	103 1/4	103 1/4	99	100 5/8	101 3/8
29	101 1/4	100 1/4	97	97	98 3/8
General Average,					91 7/8

JANUARY OFFICIAL QUOTATIONS FOR REFINED.

THIS table gives the daily quotations for refined oil at the principal foreign as well as domestic ports :

	N. Y.	Philadelphia.	Baltim're.	London.	Bremen.	Antwerp.
December,	cts.	cts.	cts.	pence.	m'r.k.	fr'cs.
1	9 3/8	7 1/8	7 1/8	6 7/8	7.30	19
2	9 3/8	7 1/8	7 1/8	6 7/8	7.30	19
3	9 3/8	7 1/8	7 1/8	7 1/8	7.30	19 1/4
4	7 1/2	7 1/4	7 1/4	7 1/8	7.50	19
5	7 1/2	7 1/4	7 1/4	7 1/8	7.50	19
6	7 1/2	7 1/4	7 1/4	7 1/8	7.50	19
8	7 1/2	7 1/4	7 1/4	7 1/8	7.30	19
9	7 1/2	7 1/4	7 1/4	7 1/8	7.30	19
10	7 1/2	7 1/4	7 1/4	7 1/8	7.30	19
11	7 3/8	7 3/8	7 3/8	6 5/8	7.55	19 1/2
12	7 3/8	7 3/8	7 3/8	6 5/8	7.55	19 1/2
13	7 3/8	7 3/8	7 3/8	6 5/8	7.55	19 1/2
15	7 3/8	7 3/8	7 3/8	7	7.55	19 3/4
16	7 3/8	7 3/8	7 3/8	7	7.35	19 3/4
17	7 3/8	7 3/8	7 3/8	6 7/8	7.40	20
18	7 3/8	7 3/8	7 3/8	6 7/8	7.40	20
19	7 3/8	7 3/8	7 3/8	7	8.40	19 3/4
20	7 3/8	7 3/8	7 3/8	6 7/8	7.30	19 1/2
22	7 3/8	7 3/8	7 3/8	6 7/8	7.30	19 1/2
23	7 3/8	7 3/8	7 3/8	6 7/8	7.30	19 1/2
24	7 3/8	7 3/8	7 3/8	6 7/8	7.30	19 1/2
25	7 3/8	7 3/8	7 3/8	6 7/8	7.30	19 1/2
26	7 3/8	7 3/8	7 3/8	6 7/8	7.30	19 1/2
27	8	7 3/8	7 3/8	6 7/8	7.65	19 1/2
29	7 3/8	7 3/4	7 3/4	6 7/8	7.35	19 1/2
30	8	7 3/4	7 3/4	6 7/8	7.35	16 1/2
31	8	7 3/4	7 3/4	6 7/8	7.35	19 1/2

THE summary of oil operations which appears elsewhere for January, makes a very light showing. One year ago a few hundred new wells were added to the producing list each month, and here we are with only about one hundred at present, and these all located upon the tail end of each producing field. The future does not look bright for the "festive driller."

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BRADFORD, PA., MARCH, 1883.

No. 3

PETROLEUM.

CHAPTER XV.

THE South Improvement Company having been extinguished and the effects of the thirty day shut down having been at least partially overcome, the producers of oil found business somewhat active during the early months of 1873. The price of oil, however, was less than at the beginning of the memorable year previous, being only \$2.60 against about \$4.90 in January, 1872. The large increase of production, which was occasioned by the developments in Butler and Clarion counties during the latter half of 1872 and again during the early part of 1873 by the fourth sand development (so-called), naturally tended to depress the price of crude oil. This, however, had no effect upon the operators, who pursued the business with as much zeal apparently as if the world was soon to become supremely darkened because of a scarcity of this illuminant. It was during the pleasant days of April or May of 1873 that the fact dawned on the minds of the trade that there existed a

FOURTH SAND BELT.

Galey and others who first attempted to improve a small producer, west of Karns City about one mile, by sinking the same 200 feet below the level of the regular third sand, created an excitement and opened the way to a very large increase not only in operations but also in production quite unexpected by the trade. This well was drilled to the regular third sand and being located near the western edge of the same proved to be a very small producer. After pumping it for some time the owners concluded to drill deeper in hope of obtaining at least an increase of gas. Imagine their astonishment, however, on finding another excellent oil rock 200 feet below which was very prolific of oil. The well started at about 300 barrels a day and was a signal for all other owners in the neighborhood to follow suit. The drill was therefore set in motion in the neighborhood and the result was, a vast area of territory of the richest character was opened. The old wells on the regular third sand belt, both southwest and northeast of the venture just completed, were the first, of course, to receive attention. It was soon ascertained, however, that the new strike was situated close to the

southeastern limits of the newly discovered formation. Again, at the northeast, the village of Petrolia was found to be situated at the border on that side. But, as the drill descended in a westerly and easterly direction from the boundaries of the third sand belt, it was proven conclusively that the fourth sand, so-called, lay diagonally underneath the third. It required some stretch of the imagination and faith in one's own deductions to establish a theory to this effect and proceed to act upon it. They were not wanting, however, who were ready for the emergency. As stated in the last chapter Vandergrift, Lecky and others developed the Troutman farm on the west which gave rise to a wonderful excitement in that direction. Two new towns sprang into existence soon after the Troutman strike, viz: Modoc and Greece City. The latter was the greater of the two and was occasioned by the favorable result of the Morreson well on the farm of the same name, lying immediately east of the site of the new city. The distance of Modoc from Petrolia was four and one-half miles west, while Greece lay still beyond about two miles. All these developments occurred during the early part of 1873 and during the same period Hunter & Cummings, of Tidioute, Pa., bent their energies in securing property on the east end of the belt. They succeeded in capturing a large portion of the territory lying between Petrolia and the Allegheny river at a royalty of one-eighth and in some cases a small bonus in cash. Their first venture was known as the "Lady Hunter" and was situated two miles east of Petrolia. It was completed in June or July and flowed more than 1,000 barrels a day for some time. The strike caused no little excitement on that end of the line and resulted in the founding of another "city" whose dimensions, however, were by no means very great. This city was named Criswell, in honor of the gentleman who had secured a favorable tract of land in that vicinity, and aided by H. L. Taylor & Co., the largest producing firm of that day and locality, operated the same with good success.

We have therefore shown the principal features of the development of this peculiar phe-

nomenon—the fourth sand. It was more than nine miles in length from east to west and was a mile wide and exceedingly prolific. The rock was quite pebbly and in most regards was superior to the regular third, though the wells were not as certain of good results. The rock was not so generally porous as the former. It was the occasion, however, of a wonderful increase in the daily yield of the region and so flooded the country with oil that the price of crude dropped to forty cents a barrel. It was believed for a season that the business was eternally ruined and all connected with it were destined to suffer loss even after securing large wells. When the report that an operator had obtained a well of 100 barrels capacity was received by the trade sympathy was usually expressed for the unfortunate owner. A hundred barrel well was considered a damage instead of a blessing and a prize. This enormous increase of production, however, worked valuable results to the oil trade in after years, as its cheapness aided largely in forcing it into many parts of the world into which it might never have reached but for its remarkable low price. At the same time hundreds of operators, who, while oil remained above the dollar point, struggled for success and financial life with some promise of reward, were blown to the winds. It is said there were more financial wrecks as direct results of the overflow of the fourth sand pool than even Pithole or Oil Creek could boast in their departure from the gresian arena.

While the ends of the fourth sand belt were being defined those of the regular belt were elongating at some considerable haste. The McKinney Bros. purchased the Hemphill tracts on the flats west of Millerstown and commenced operations forthwith. They were guided by the Stewart well on the farm adjoining to the north, which was yielding at the time of the purchase by McKinney fully 100 barrels a day. They anchored on the chance, however, about \$45,000. Southwest of this on the Diviner farm a new test was already in progress which was to determine the character of the territory in that direction. It was located about two miles southwest of the village of Millerstown and resulted in a 500 barrel producer, causing the most intense excitement in the neighborhood. During the same summer a test well was sunk on the McGinley farm, two miles southwest of Millerstown, by Dr. Hunter, of Pittsburg, and was used as a mystery and may be termed the first of the character that the oil country was cursed with.

To such an extent did the doctor carry the scheme of misrepresentation—that he was accorded the credit of being the largest liar in the oil country. Whether the doctor, through astute calculations and manœuvres, managed to escape the direct result of truthful answers to interrogatories or whether he bluntly denied facts is a matter to be decided. The most charitable view to take of it would be the former and possibly the nearest correct. The well, however, became known throughout all oildom as the “Big Liar Well” and Dr. Hunter attained a standing reputation in a similar direction that he has borne till this day. Some of the original owners with him still maintain that the mystery cost them money as well as a loss of confidence in their associate. The well, though at first reported worthless, proved to be one of the best producers in the southern part of the district and opened a large block of territory to the southwest, which began to be developed about the first of the year 1874. It required some time to establish the outlines or mark the boundaries of the conglomerate and the idea obtained for a time that there was a strong possibility of a continuation of the belt southwestward to Greene county and perhaps beyond to form a junction with the West Virginia pool. The lands, therefore, for many miles in advance were all leased or purchased for oil purposes and a few test wells were projected. One of these which gave rise, at or near its completion, to considerable speculation, was located on the Bear farm, near the line of the West Penn R. R.

A LAWYER'S VIEW.

To the Editor of the Age :

THE testimony of Mr. John D. Rockefeller, given before the Senate Committee on “corners,” threw but little, if any, light upon the “mystery” known as the Standard Oil Co. Mr. Rockefeller would answer no question whatever to answer to which would in any way reveal the secret operations or composition of that corporation. It is perhaps but just and proper that this privilege be accorded private citizens. A corporation should have all the rights of a private citizen in matters that pertain to its internal affairs or to the conduct of its business generally. When, however, it commits any overt act against the peace of the community or a private citizen or another corporation there should be a remedy somewhere for the breach and a power to punish for the crime. All the overt acts of individuals, who may have been or who may now be

connected with the Standard Oil Co. or any other corporation, are punishable by the law of the State wherein they occur. Whenever an act is committed against the welfare of the people somebody must be responsible. If a man in the employ of the Standard Oil Co. commits perjury for its benefit the perjurer alone is responsible before the law for the act. If an employee of the Standard Oil Co. enters into an agreement with somebody outside of the Standard by which a third party is defrauded of certain rights the party or parties making the agreement should be held responsible and they are responsible and not the organization to which both or either may belong, though the contract is made directly for the benefit of the corporation. The fight, or warfare, therefore, that has been waged against the Standard Oil Co. as a corporation for the past eight years has been made on a false basis. Wherever wrong was known to have been committed in the interest of that body the individuals committing the error should have been pursued by the ends of the law. It would prove, even at this date, the only remedy for any evils that exist in the conduct of affairs in the oil trade. If it can be proven that a quantity of oil desired to be shipped to any given point is delayed in the transportation by reason of neglect of the railroad or if it can be shown that a railroad possesses facilities for transportation and refuses an application the party having the authority becomes responsible before the courts and if a few hundred of such suits were instituted by those desiring justice to be done there would very soon be less cause for complaint. It is, therefore, not the corporation that becomes responsible for overt acts but the individuals who represent it.

J. R. C.

THE FOREST FIELD.

The Forest county development cannot be looked upon as of little importance. From what our correspondent states elsewhere there is a very strong probability that the production of the field will be increased to a considerable extent during the next three months. But admitting this to be true—and the AGE has never doubted it—the result cannot be very damaging to the trade or values. All eyes have been turned in that direction as the one element to be feared. Speculators have watched the movements of every temper-screw that has done service there during the past five months with the greatest of vigilance, and after all something more than Forest county must be brought to

the surface in order that the world may in the future be thoroughly supplied with oil. The territory is rich in spots, beyond question, but the duration of such has never been known to be very great. It requires the drilling of a large number of wells in such "soil" to secure a large daily yield for, as a rule, many dry holes are obtained. But there are other localities within the range of the great oil belt or basin that may and probably will be developed during the year to come. These, with what Forest county will accomplish, will, in all probability, have a depressing effect upon prices for the first five months of the year at least. If the latter field gives 12,000 barrels a day, as it probably will sometime in the future, shipments will increase at a very rapid rate and overcome the depressing influence of such a result.

PRODUCERS' STOCK REPORT.

A number of the heaviest producing firms of the country about a month ago commenced a system of gauging the stocks at their wells for the purpose of ascertaining the ratio of decrease or increase of the same during the month. The following are the names of those engaged: The Emery Oil Co., the Quintuple Oil Co., P. T. & W. C. Kennedy, the McKean Oil Co., A. J. Thompson, J. L. McKinney & Co., the Anchor Oil Co., Murphy & Davis, the Angell Oil Co. and their lessees, Hazlewood Oil Co., Bradford Oil Co., Mitchell & Jones, McCalmont Oil Co., Minard Run Oil Co., Forest Oil Co., Whitney & Wheeler, Columbia Oil Co., American Oil Co., John P. Zane, T. P. Thompson, G. H. VanVleck, Willoughby & Kinkaid, H. P. Malone & Co., Johnson & Co., Jno. J. Carter, Chapin & Co., O. H. Childs & Co., Enterprise Transit Co., and the Union Oil Co. These represented in the gauge 3,657 wells and the decline in stocks was 24,599.31, or an average per well of decline 6.72. They then produce the following result:

	Barrels.
Decrease of stock at 3,657 wells	24,599.31
Average decline stocks per well	6.72
Decline of stocks 12,300 wells entire field	82,656
Entire runs in February	1,077,468
Average daily runs	38,481
Average daily production Bradford field in Feb'y	35,529

Stocks in the Alleghany field were reduced at the rate of 654 barrels per day during the twenty-eight days in February. The average daily runs from that field were 13,154 barrels. This makes its average daily production last month 12,500 barrels. The production of outside fields is estimated at from 12,000 to 13,000 barrels.

REPORT OF
OIL OPERATIONS FEB. 28.

Wells Completed.

BRADFORD.			
District.	Wells.	Prod'n.	Dry.
E. & W. Branches	20	239	3
Kendall Creek	3	32	.
Foster Brook	7	71	.
Cole Creek & B.	3	133	.
Indian Creek	2	20	.
Kinzua	2	15	1
Totals	37	510	4
ALLEGANY.			
Alma	4	50	.
Bolivar	24	310	4
Wirt	4	48	1
Genesee	23	316	2
Clarksville	5	20	3
Scio	7	60	2
Totals	67	804	12
WARREN AND FOREST.			
Tiona	2	18	.
Clarendon	2	20	.
Forest and Sheffield	8	285	3
Totals	12	323	3
LOWER FIELD.			
Butler and Armstrong	2	20	.
Bald Ridge	5	175	2
Venango County	8	79	2
Totals	15	274	4
GRAND TOTALS.			
Warren and Forest	12	323	3
Allegany	67	804	12
Bradford	37	510	4
Totals	131	1911	23
Totals, January	125	2688	12

Drilling Wells.

BRADFORD.			
District.	Drilling.	Rigs.	Total.
East and West Branches	11	7	18
Big Shanty	12	8	20
Quintuple Tract	2	8	10
Kendall Creek	3	5	8
Foster Brook	6	5	11
Cole Creek and Bing	6	3	9
Indian Creek	0	2	2
Four Mile	1	2	3
Kinzua	4	3	7
Elk County	2	1	3
Lower McKean County	1	1	2
Totals	48	45	93
ALLEGANY FIELD.			
Alma	5	15	20
Bolivar	17	15	32
Wirt	1	1	2
Genesee	22	30	52
Clarksville	2	00	02
Scio	17	9	26
Totals	64	70	134
WARREN AND FOREST.			
Tiona	4	6	10
Clarendon	3	2	5
Cherry Grove	0	1	1
Sheffield and Forest County	18	17	35
Totals	25	26	51
LOWER FIELD.			
Venango County	6	4	10
Butler County	1	3	4
Bald Ridge	5	7	12
Totals	12	14	26
Grand Totals Bradford	48	45	93
Allegany	64	70	134
Warren and Forest	25	26	51
Totals, January	127	131	258
Increase, February	22	24	46

THE GAUGERS' BILL.

The bill presented to the Legislature in January last relating to the appointment of a person to render statements regularly of the condition of the oil pipe lines of the State does not agree with the sentiments of the Oil City Oil Exchange. At a meeting recently held the Exchange spoke as follows:

"Your committee appointed to examine into the provisions of House bill No. 294, commonly known as the gauge bill, would respectfully report:

That the said bill as it now reads is entirely inadequate to accomplish the object aimed at, and, judging from its provisions, or want of provisions, we infer that the author had a very vague conception of that part of the petroleum business covered by the Pipe Lines.

The second preamble in the bill, which contains a careless fling at the integrity of sworn statements of the officers of the pipe lines we would not deem worthy of notice were it not a part of a bill that is before our State Legislature, and which must there receive serious consideration, and in reference to this preamble we deem it but just to say that we have the fullest confidence in the integrity of the sworn monthly statements of the pipe lines now engaged in transporting and storing petroleum. And yet, while we have this confidence, we do not wish to obstruct any movement or bill that will result in a full and complete gauge of the oil stocks of any or all the pipe lines so that the public may be doubly assured that all outstanding vouchers of any pipe line represent an equivalent amount of oil. * * * * And we would respectfully request the representatives of the oil country to see to it that the bill be so amended or a substitute therefore be offered as to bring about the desired result."

The bill in its original form was amended by Senator Emery so as to authorize the examination of and inquiry into the doings of the Standard Oil Co. This part of the bill, however, is a tail that seems likely to swing the dog till he is dead. In other words, the bill is likely to stay some time in the hands of the committee to which it has been referred on that account. It looks as if the body didn't want a bill passed at all.

THE new hardware and oil well supply store of L. Emery Jr. & Co. on the old stand, Main and Exchange place, is a model of beauty and a perfect "community" as regards stock.

CRUDE OIL MARKET.

MONTHLY AND YEARLY AVERAGE PRICE OF PIPE LINE CERTIFICATES OR CRUDE OIL AT THE WELLS, IN BARRELS OF 42 GALLONS EACH.

A. D.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	D'emb'	Yearly
	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Avg'es.
1859.									20.00	20.00	20.00	20.00	20.
1860.	19.25	18.00	12.62½	11.00	10.00	9.50	8.62½	7.50	6.62½	5.50	2.75	2.75	9.
1861.	1.00	1.00	1.00	.62½	.50	.50	.50	.25	.20	.10	.10	.10	.
1862.	.10	.15	.22½	.50	.85	1.00	1.25	1.25	1.25	1.75	2.25	2.25	1.
1863.	2.25	2.50	2.62½	2.87½	2.87½	3.00	3.25	3.37½	3.50	3.75	3.85	3.95	3.
1864.	4.09	4.37½	5.50	6.56	6.87½	9.50	12.12½	10.12½	8.87½	7.75	10.00	11.00	9.15½
1865.	8.25	7.50	6.00	6.00	7.37½	5.62½	5.12½	4.62½	6.75	8.12½	7.25	6.50	6.87
1866.	4.50	4.40	3.75	3.95	4.50	3.87½	3.00	3.75	4.50	3.39	3.10	2.12½	3.59
1867.	1.87½	1.85	1.75	2.07½	2.35	1.90	2.62½	3.15	3.40	3.55	2.50	1.87½	2.74
1868.	1.95	2.00	2.55	2.82	3.75	4.50	5.12½	4.57½	4.00	4.12½	3.75	4.35	3.41½
1869.	5.75	6.95	6.00	5.70½	5.35	4.95	5.37½	5.57½	5.50	5.50	5.80	5.12m	5.63¾
1870.	4.52½	4.52½	4.45	4.22½	4.40	4.17½	3.77½	3.15	3.25	3.27½	3.22½	3.40	3.89
1871.	3.82½	4.38	4.25	4.01	4.60	3.85½	4.79	4.66	4.65	4.82½	4.25	4.00	4.34
1872.	4.92½	3.80	3.72½	3.52½	3.80	3.85	3.80	3.58½	3.25	3.15	3.83½	3.32½	3.64
1873.	2.60	2.20	2.12½	2.30	2.47½	2.22½	2.00	1.42½	1.15	1.20	1.25	1.00	1.83
1874.	1.20	1.40	1.60	1.90	1.62½	1.32½	1.02½	.95	.95	.85	.55	.61½	1.17
1875.	1.03	1.52½	1.75	1.36½	1.40	1.26½	1.09	1.13	1.33	1.32½	1.44	1.55	1.35
1876.	1.80	2.00	2.01	2.02½	1.90½	2.01¾	2.24½	2.71	3.81	3.37½	3.11	3.73	2.56¼
1877.	3.53¼	2.70	2.67½	2.58	2.24	*1.94¾	2.07½	2.51	2.38	2.56¾	1.91	1.80	2.42
1878.	1.43	1.65¼	1.59	1.37½	1.35¼	1.14	.98¾	1.01¾	.86½	.82½	.89¾	1.16	1.19
1879.	1.03	.98	.86¼	.78½	.76	.68¾	.69¾	.67½	.69½	.88½	1.05¾	1.18½	.85¾
1880.	1.10¼	1.03¾	.88¼	.78	.80	1.00	1.06¼	.91	.96	.96¾	.91¾	.91¾	.94½
1881.	.95½	.90¾	.83¾	.86¾	.81¾	.81¼	.76¾	.78¾	93.3-16	.94¾	.83	.84	.85¾
1882.	.83¼	.85¾	.80¾	.78½	.69¾	.54½	.56¾	.58¾	.74½	.94	1.27½	.94¾	.79¾
1883	.91¼	.9678											

PRODUCTION TABLE.

SHOWING THE TOTAL DAILY NET YIELD OF THE PENNSYLVANIA OIL FIELD FROM SEPTEMBER, 1859, TO NOVEMBER 30th, 1882, IN BARRELS OF 42 GALLONS EACH.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals.
1859.									10	15	18	28	2,173
1860.	30	50	89	215	500	1,000	2,000	2,500	3,000	3,500	2,000	3,000	54,7439
1861.	3,201	4,041	4,800	5,400	6,000	6,100	7,100	8,500	7,000	5,150	5,514	6,716	2,119,045
1862.	6,000	5,300	7,400	8,000	9,400	9,000	8,500	11,000	13,000	10,565	8,053	7,238	3,153,183
1863.	6,200	6,400	7,000	5,500	6,000	7,603	7,022	8,100	9,200	7,120	9,500	10,260	2,667,543
1864.	8,100	6,300	4,500	5,000	7,000	5,100	5,600	5,700	7,180	5,545	10,100	10,320	2,215,150
1865.	5,900	5,800	5,000	7,500	8,000	8,000	7,400	6,350	6,400	6,800	7,600	9,350	2,560,200
1866.	9,200	9,100	5,000	7,100	8,100	9,500	9,350	9,440	12,000	10,400	11,000	11,165	3,385,105
1867.	10,900	8,100	9,000	10,100	10,500	9,000	10,100	10,000	10,100	7,660	9,155	8,313	3,458,113
1868.	8,200	9,400	8,100	9,300	11,000	12,400	13,000	11,800	10,250	8,225	7,580	7,150	3,540,670
1869.	8,100	8,500	10,000	11,000	13,000	13,000	13,560	13,000	13,500	12,500	11,200	10,625	4,186,475
1870.	11,348	11,802	11,509	12,400	15,990	13,400	13,800	15,950	18,203	18,000	17,061	15,990	5,308,046
1871.	13,500	13,300	13,082	12,950	13,054	13,882	14,900	15,866	15,555	15,889	15,599	15,841	5,278,072
1872.	17,943	17,894	15,680	16,221	17,402	12,140	16,933	17,440	16,598	18,450	25,942	20,630	6,505,774
1873.	20,550	21,460	21,830	22,260	24,632	26,361	23,406	30,900	32,500	31,343	33,584	34,680	9,849,508
1874.	32,800	30,940	29,760	28,104	29,442	31,222	33,987	32,000	29,461	29,944	29,231	28,101	11,102,114
1875.	27,900	26,509	26,012	23,009	23,000	23,805	24,991	23,940	23,800	23,900	23,821	23,594	8,948,749
1876.	23,102	25,440	13,560	23,800	24,628	24,400	24,890	25,300	25,900	26,400	26,500	25,900	9,142,940
1877.	26,930	27,560	28,860	32,060	36,000	37,440	39,210	42,100	41,321	41,200	39,900	40,120	13,230,330
1878.	39,200	39,900	39,200	40,100	41,111	40,820	41,200	42,900	43,999	44,480	45,200	43,900	15,272,491
1879.	44,000	43,830	47,960	50,810	52,911	55,600	56,911	59,940	61,498	60,980	58,750	58,231	19,835,903
1880.	59,982	63,890	66,215	68,063	72,080	73,104	73,794	74,980	71,941	77,491	76,112	74,080	26,086,692
1881.	73,030	69,060	73,900	75,245	79,000	82,460	81,900	79,100	78,231	77,971	77,892	76,642	28,136,353
1882.	75,028	74,910	74,751	76,690	78,601	80,469	90,020	98,739	70,685	72,805	59,513	66,980	28,452,834
1883	62,600	59,104											
Total twenty-four years to December 31st, 1882.													215,984,901
Average per day for twenty-four years.													24,541
Average per day for 1882.													77,950

THE AGE's statements of the production of petroleum in Northwestern Pennsylvania are generally taken as the most reliable attainable. It has followed it very closely for fifteen months and will not fail so to do for the fifteen months to come.

It is curious to know by what process of reasoning some production calculators made an increase in the daily yield of petroleum for January. They were, of course, bears in the market and used the argument as a weapon on their side of the fight.

FOREST COUNTY.

Sketch of Recent Developments.

SHEFFIELD, Pa., March 10th, 1883.—During the month of February some interesting though not very important developments have transpired throughout the region below this place. Last Wednesday the McCalmont No. 2, which is located in close proximity to No. 1, came in and commenced flowing at the rate of 1,800 barrels a day, but did not keep it up for the twenty-four hours. We have had half a dozen or more new wells all told and in most cases the result has been quite satisfactory to the owners. But as they are all located within the bounds of the defined territory they determine nothing save the peculiar character of the territory, which differs somewhat from Cherry Grove. The latter seemed to be, and actually was, a pool or basin with few breaks or dry spots, and the first wells had a lively “draw” from a large scope of porous rock. The former breaks this monotony by inserting a dry streak or bar occasionally, causing a delightful uncertainty to hang over the promised venture of every well that approaches gravel. It is quite well defined that wells will not drain much territory but what belongs particularly to themselves and must, therefore, decline very rapidly, as is the case in almost every well thus far drilled in this section. Of the last batch that has been added to the producing list a gauge on the 12th inst. exhibited this state of affairs:

Murphy No. 2	125 barrels.
Shannon & Co. No. 5	110 “
Patterson No. 2	208 “
McCalmont No. 2	175 “
Reno No. 2	180 “

All these started largely from 50 to 85 barrels per hour. Big drop. The Porcupine well mentioned at the last hour last month is doing eight to ten barrels a day of a rather weighty species of oil.

There is much wildcatting in progress. Dimick & Falconer have finished a dry hole on warrant 3,142, which cuts off speculation in that direction. But the most important venture of the field is the Sherman Bros., which has just passed into possession of the Union Oil Co. It is located some distance west of the line supposed to circumscribe the Cooper pool. It reached the sand on the 15th inst. and caused considerable anxiety on the part of the trade. It being located somewhat west of former developments its result has been awaited with greater interest. On this (15th) it is supposed to be

close to the spot where oil should be found. It can hardly make a producer and if so should have some influence in the right way.

The fact is, however, wells, big or little, have very little to do with regulating the oil market. The situation warrants a vast improvement in prices, but the “situation” is managed, controlled and made by the power which has ruled in oildom for many years. It is true speculators of heavy means can and do influence even the “power that rules” and sometimes force it to do that which it otherwise would not do. But the stocks above ground which, as will be seen by the table elsewhere, are large, being over 35,000,000 barrels, are used as a leverage to sway the tide of public opinion. The owners of these stocks know they are worth much more than the original cost and they will not be disposed of at the prices now ruling.

The whole Cooper tract on the 15th and the entire region southwest of Sheffield was not producing 1,600 barrels a day, all spouters included. At this rate it is going to require more time to attain a 10,000 barrel production than was accorded the field a month ago.

IRON TANKAGE.

The following is a list furnished the *Era* by the United Lines, showing the amount of iron tankage completed during February in different parts of the field. It shows that ten tanks were completed last month with a total capacity of 460,600 barrels. In January the same company completed ten tanks, with a total capacity of 377,550 barrels. There is a marked slacking in the building of iron tankage:

Location.	No.	Owner.	Capacity.
Olean	2	United	71,100
Colegrove	4	“	141,450
Wellsville	7	“	248,050
Total	13		460,600

THERE is a well drilling on an elevated plateau in Forest county that stands six miles from any oil development. Mr. Henry Landsrath, of Cherry Grove notoriety, is the instigator. Mr. L. goes for plateaus.

It is curious to see the mental efforts that are now put forth to find a spot of sufficient promise to warrant the sinking of a test well. The whole producing fraternity—with an occasional exception—is out on parade waiting for some new development where drilling can be accomplished with some safety, as in Bradford and Allegany. The spot may not be found in 1883. What then?

THE PETROLEUM AGE.

DEVOTED TO THE

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W. J. McCULLAGH,

Editor.

THE wizard Wiggins, of the Dominion beyond the St. Lawrence, guessed closely at the storm that set in on the 10th.

THE Runs during the first fifteen days of this month have been greater than anticipated, but there is a reason for it for which the Earth is not responsible.

THE second volume of the AGE will be completed with the December No. instead of November, as with No. 1. This change was made last month by running the January and February numbers together. All the figures of Runs, Shipments, Stocks, &c., appeared for both months.

THE oil market declined steadily from the 28th of February, when it was apparently strong at \$1.02 to 90 cents on the 8th inst. Inquiries as to the probable cause were numerous and in no case was a satisfactory answer given. High storage rates may be assigned as one of the leading agencies.

THE fact that the "balance of trade" favors the commerce of the United States is quite encouraging to producers and nearly all manufacturers. The time is undoubtedly coming when the United States will be the great "Egypt" for the supplying of the world beyond the water with corn, as well as many other items of growth and manufacture.

THE Senate Committee on "Corners" have accomplished but little in showing up the mode of cornering the petroleum market. A "corner" is only another name for conspiracy which requires the acts of two or more persons. A petroleum "corner" is generally accomplished in such a manner that the originators are so far from sight that they cannot be seen or found by the aid of the most powerful "field" glass.

THE parties who received fresh information from the new Forest county gushers on the 10th inst. and sold the market short at 88 cents about noon felt at 3 P. M. as if they had been elevated skywards by the agency of a pair of asses hind legs. They are still around telling just how it all happened and how they had to pay 95 cents the same evening to cover. Verily, there is a time for all things—a time to go short and a time not to.

PRODUCERS are never perfectly satisfied. When oil is bringing from \$1.00 to \$1.05 a barrel they grumble and kick at everything that touches them, because they cannot obtain \$1.10 or more. When there is a boom they can never see the top of values and when, on the other hand, a decline occurs there is no bottom to the market. When the latter is ninety-five cents dollar oil looks like a mighty big thing to their eyes. Perhaps an average of a dollar five a barrel for the year would be a pretty big thing after all.

A SLIGHT increase in fresh operations occurred in February but that was expected by the trade generally. The last months of winter offer opportunities for placing material on the ground not enjoyed during the spring season and as a rule operations always increase. The territory, however, upon which this material has been placed presents no discouragements to those who are hoping for improvement in values. Forest county stands alone in its glory as the champion section of drillable territory. Its production will increase considerably during the spring months.

THE California oil fields may become of sufficient importance some day to supply the state with what oil it needs. Producers in Pennsylvania, however, need not become alarmed over such prospects. There will be demand enough from the great growing west, a long distance nearer than California, to overcome all such encroachments. The time is coming when the United States alone will absorb or utilize 100,000 barrels of oil per diem and will not labor very hard either. Petroleum is, perhaps, the most important of all mineral discoveries, if we may except coal. Even the latter is liable to assume second place in the sweet bye and bye. The fact is the petroleum industry is as yet only in its infancy.

THE Balltown pool is limited as to dimensions and terribly spotted as to character.

THE SITUATION.

The February returns from the producing centres show a slight increase in operations and a few more completed wells than the month previous. This is the only feature worthy of note or comment in this department of the oil country trade. The new wells, though numbering half a dozen in excess of January, were not yielding as much oil on the last day of the month by nearly 800 barrels as the number for January. This may be accounted for by the fact that no very large wells were completed near the close of the month in the Forest county field. Since the first, however, there have been a few wells finished which have had a depressing tendency upon prices and the lowest market witnessed for two months was the result, viz.: 85½ cents. From the dollar mark, where it left on the 28th of February, the course was steady and almost uninterruptedly downward. Day after day the decline continued and those who held high-priced oil, or oil above one dollar a barrel, began to feel the weight of the load they were trying to bear against vast and apparently determined odds.

From the 95 cent point prices should not have receded in the first place, but here a heavy short interest had been created which continued as a bear element and a further drop of about ten cents a barrel transpired. All this indicates nothing more or less than the power of money and monopoly and the uncertainty of petroleum supply, which seem to be the two controlling spirits of the business. It appeared more like a dream to the whole trade that 85 cent oil had again been reached than anything else. It was a dream—there was nothing real about it. The proper and legitimate place for prices to range is about \$1.25, but the power, of the gods who have manipulated matters for the past ten years seems now to be so great that at their bidding men lose or win, for prices rise and fall as they wish. When balances accumulate at the various purchasing offices the market is usually boomed, the balances are manufactured into certificates and dumped onto the various exchanges and prices drop. Holders then pay storage and other carrying rates for weeks, and finally, tiring of the load, dump the oil back to the original owners ten or fifteen cents a barrel less than the latter first gave it to them. This state of things, of course, should be changed. There is not sufficient faith exercised on the part of outside monied men in the future of the business. The daily production is over 20,000 barrels a day less

than it was year ago. The avenues of consumption continue to enlarge as time marks the years and the demand will never cease. This cannot be said of supply. The world is now obtaining nearly a fifth less oil than it was a year ago and it has only about one year's supply visible. There exists no argument in favor of low prices even at the dollar mark. The eyes of the whole trade are turned toward Forest county and grave fears are entertained regarding the probability or outcome there as regards its supply. But, granting it all that the most surly specimen of the bruin tribe could ask for it, what then? The answer is clear—"Not much" for such a time as this.

The most recent developments indicate a pool of somewhat limited proportions, but, of course, as yet undefined to the satisfaction of all concerned. Within the pool limits the wells start at a very heavy rate, some doing as much as 1,500 barrels the first day. They drop, however, with great rapidity and the whole area may be expected by the first day of July to occupy a position in the petroleum world similar to Cherry Grove and other decaying fields. Yet we have had oil less than a dollar a barrel at the wells, and but one buyer even at that. There is, therefore, but one view to take of the petroleum situation and this is a promising one. Important new developments alone can change the aspect. From the figures we have collated we find the following results. The table shows the condition of the field on the 1st of March. The average daily yield for the month will be found by examination of the regular production table elsewhere.

District.	Production.	
	Mar. 1.	Feb. 1.
Bradford	33,114	33,940
Allegheny	10,710	11,000
Warren and Forest	6,800	6,000
Lower Country	7,750	8,600
Totals	58,374	59,540

CONGLOMERATE.

SHIPMENTS are increasing.

THE Reno well No. 2 is not as good as No. 1.

A WELL recently sunk near Honesdale was a fizzle.

CHARTERS have been larger for the past fifteen days than for several months previously.

THE Wilson sucker rod manufactory, of Corry, Pa., turns out the best rods in the market. They are of every description.

THE AGE now circulates in every state in the union except Tennessee, and a few hundred subscribers will be secured there soon.

THE REAL ESTATE TRADE.

As a rule values, in this important feature of the petroleum trade, change and rechange in sympathy with the market price of oil. While prices are on a descending scale buyers become less numerous and holders of producing properties and promising territory generally concede, somewhat reluctantly, to the demands or bid-dings of the former and as a consequence trades become fewer. On the other hand when there is activity in the market and prices are advancing purchasers are much more easily satisfied and trades multiply.

In Forest county territory there has been considerable done during the past sixty days, there being as many as fifty trades reported, aggregating about \$375,000. In February the amount, as given by record and other reports, amounted to \$240,000.

In the Bradford field there were but few sales while there was more inquiry than usual.

All over the region there have wandered those who have seemed anxious to acquire producing wells and unless some new territory is unearthed very soon holders of small pumpers are likely to be rewarded for their possessions far beyond their anticipation.

In material for new wells there has transpired quite a large drop in prices. Five and five-eighth casing is now selling at 55 cents per foot and tubing from 15 to 18, and other things in proportion. The cause of this depression is the decline in demand, owing to the extreme scarcity of territory upon which the masses can enter and engage the drill.

THE wells of the Los Angeles district, California, are reported declining quite rapidly. Age will tell on all oil communities.

BALDWIN'S RAILWAY GUIDE states that the Erie has almost concluded a lease of the New York, Pennsylvania & Ohio R. R.

THE Western Union Telegraph has absorbed the Mutual Union under a lease running for the limited period of ninety-nine years. Who'll be the Goulds, Fisks, Hatches, Sages, Vanderbilts and Rockefellers at that time?

NEW YORK is rapidly absorbing the speculative portion of the oil trade. It cannot become the leader, however. Oil City must continue as the centre for some time at least, as it is the centre of capital in the oil country.

FEBRUARY SALES AND RUNS.

FOLLOWING is a summary of the sales of oil at the Bradford, Oil City, Pittsburg and New York Oil Exchanges during the month of February. Nothing less than 1,000 barrel certificates ever sold; each barrel represents forty-two gallons:

	Bradford.	Pittsburgh.	Oil City.	New York.
January, . .	23,885,000	11,441,000	27,163,000	
February, . .	19,412,000	9,153,000	22,207,000	
March, . . .	27,467,000	13,208,000	29,448,000	
April, . . .	22,245,000	8,325,000	19,171,000	15,000,000
May, . . .	39,777,000	21,814,000	38,402,000	35,000,000
June, . . .	29,969,000	20,417,000	38,127,000	21,000,000
July, . . .	48,736,000	22,040,000	31,536,000	22,400,000
August, . . .	34,494,000	16,140,000	50,000,000	20,000,000
September, .	113,402,000	67,220,000	156,450,000	48,500,000
October, . .	59,797,000	36,586,000	69,737,000	30,200,000
Nov. . . .	105,500,000	76,800,000	161,000,000	91,000,100
Dec. . . .	70,000,000	35,000,000	103,000,000	48,000,000
Jan. 1883 . .	41,867,000	39,626,000	56,001,110	36,000,000
February . .	34,043,000	20,391,000	44,000,000	35,000,000

Average runs and shipments each month of year to February 28th:

	Total Daily Runs.	Bradford Daily Runs.	Total Daily Shipm'ts.	Bradford Shipm'ts.	Char- ters.
January, . .	70,401	62,229	55,798	40,864	33,877
February, . .	81,853	72,825	63,062	47,183	43,075
March, . . .	81,186	65,758	53,489	38,963	41,080
April, . . .	80,158	67,392	54,413	35,662	35,453
May, . . .	83,397	75,472	56,478	43,329	47,220
June, . . .	89,103	78,701	65,266	47,980	54,829
July, . . .	87,948	65,445	61,779	41,013	34,213
August, . . .	111,243	70,646	66,046	42,500	...
September, .	96,079	64,608	66,220	42,000	40,000
October, . .	85,227	...	67,132	41,000	...
Nov. . . .	72,852	58,345	46,821	36,100	31,375
Dec. . . .	65,624	49,789	36,140	18,603	42,545
Jan. 1883 . .	64,665	50,951	43,585	30,321	23,459
February . .	64,909	51,823	44,083	35,805	25,647

FEBRUARY OFFICIAL QUOTATIONS FOR REFINED.

THIS table gives the daily quotations for refined oil at the principal foreign as well as domestic ports:

	N. Y. cts.	Philadelphia cts.	Baltim're. cts.	London. pence.	Bremen. m'rk.	Antwerp. fr'cs.
1	8	7 $\frac{3}{4}$	7 $\frac{3}{4}$	6 $\frac{7}{8}$	7.35	19 $\frac{1}{2}$
2	8	7 $\frac{3}{4}$	7 $\frac{3}{4}$	6 $\frac{7}{8}$	7.35	19 $\frac{1}{2}$
3	8	7 $\frac{3}{4}$	7 $\frac{3}{4}$	6 $\frac{7}{8}$	7.35	19 $\frac{3}{4}$
5	8	7 $\frac{3}{4}$	7 $\frac{3}{4}$	6 $\frac{7}{8}$	7.35	19 $\frac{3}{4}$
6	8	7 $\frac{3}{4}$	7 $\frac{3}{4}$	6 $\frac{7}{8}$	7.35	19 $\frac{3}{4}$
7	8	7 $\frac{3}{4}$	7 $\frac{3}{4}$	6 $\frac{7}{8}$	7.35	19 $\frac{3}{4}$
8	7 $\frac{3}{4}$	7 $\frac{3}{8}$	7 $\frac{3}{8}$	6 $\frac{3}{8}$	7.45	19 $\frac{1}{2}$
9	7 $\frac{3}{4}$	7 $\frac{3}{8}$	7 $\frac{3}{8}$	6 $\frac{3}{8}$	7.45	19 $\frac{1}{2}$
10	7 $\frac{3}{8}$	7 $\frac{3}{4}$	7 $\frac{3}{8}$	6 $\frac{3}{8}$	7.45	19 $\frac{1}{2}$
12	7 $\frac{3}{8}$	7 $\frac{3}{4}$	7 $\frac{3}{4}$	6 $\frac{3}{8}$	7.45	19 $\frac{1}{2}$
13	7 $\frac{3}{8}$	7 $\frac{3}{4}$	7 $\frac{3}{4}$	6 $\frac{3}{8}$	7.50	19 $\frac{1}{4}$
14	7 $\frac{3}{8}$	7 $\frac{3}{4}$	7 $\frac{3}{4}$	6 $\frac{3}{8}$	7.50	19 $\frac{1}{4}$
15	7 $\frac{3}{8}$	7 $\frac{1}{2}$	7 $\frac{1}{2}$	6 $\frac{3}{8}$	7.50	19 $\frac{1}{4}$
16	7 $\frac{3}{8}$	7 $\frac{1}{2}$	7 $\frac{1}{2}$	6 $\frac{3}{8}$	7.50	19 $\frac{1}{4}$
17	7 $\frac{3}{8}$	7 $\frac{1}{2}$	7 $\frac{1}{2}$	6 $\frac{3}{8}$	7.50	20 $\frac{1}{4}$
19	7 $\frac{3}{8}$	7 $\frac{3}{4}$	7 $\frac{3}{4}$	6 $\frac{3}{8}$	7.50	19 $\frac{1}{4}$
20	7 $\frac{3}{8}$	7 $\frac{3}{4}$	7 $\frac{3}{4}$	6 $\frac{3}{8}$	7.40	19
21	7 $\frac{3}{8}$	7 $\frac{3}{4}$	7 $\frac{3}{4}$	6 $\frac{1}{2}$	7.40	19
22	7 $\frac{3}{8}$	7 $\frac{3}{4}$	7 $\frac{3}{4}$	6 $\frac{1}{2}$	7.40	19
23	8	7 $\frac{3}{8}$	7 $\frac{3}{8}$	6 $\frac{1}{2}$	7.40	19
24	8	7 $\frac{3}{8}$	7 $\frac{3}{8}$	6 $\frac{1}{2}$	7.40	19
26	8	7 $\frac{3}{8}$	7 $\frac{3}{8}$	6 $\frac{1}{2}$	7.35	18 $\frac{3}{4}$
27	8	7 $\frac{3}{8}$	7 $\frac{3}{8}$	6 $\frac{1}{2}$	7.35	18 $\frac{3}{4}$
28	8	7 $\frac{3}{8}$	7 $\frac{3}{8}$	6 $\frac{1}{2}$	7.35	18 $\frac{3}{4}$

THE *Oil Report*, a daily paper published in New York, is a lively antagonist of the Standard Oil Co. and is conducted with fine ability.

RUNS, DELIVERIES, STOCKS.

TABLE showing the January and February Pipe Line runs and shipments, with stocks, on February 28th, 1883—official. Each barrel 42 gallons:

RECEIPTS,		BARRELS.	BARRELS.
DISTRICT.	Pipe.	January.	February.
Bradford	United		
Tidioute & Titusville	"		
Lower Goutrny	"		
Monongahela	"		
Total		1,811,822 59	1,630,015 80
Bradford	Tidewater	195,865 40	184,390 74
Titusville	Octave Oil Co.	3,373 00	2,863 28
Oil City	Charley Run	370 54	370 54
Shaffer	Shaffer Run	583 00	583 00
Franklin	Franklin Pipe	6,860 33	7,607 78
Total all Lines		2,018,874 86	1,825,831 14
Average per day, February, 1883			63,208 24
Average per day, January, 1883			65,124 99
Average per day, December, 1882			72,413 54
Average per day, November			73,098 09
Average per day, October			85,227 24
Average per day, September			96,079 68
Average per day, August			111,243 38
Average per day, July			95,192 11
Average per day, June			95,522 95
Average per day, May			85,563 08
Average per day, April			80,093 79
Average per day, March			83,724 96
Average per day, February			83,547 40
Average per day, January			71,855 43
Deliveries.			
DISTRICT.	PIPE.	January.	February.
All Points	United	1,142,118 09	1,043,912 67
Titusville	Octave Pet. Co.	3,637 20	1,216 19
Franklin	Franklin Pipe	5,649 06	5,143 61
Shaffer	Shaffer Run	95 86	95 86
Oil City	Charley Run		
Bradford	Tidewater	206,600 11	191,508 75
Total deliveries		1,358,100 32	1,241,877 08
Amn't of runs in excess of Shipments		660,774 50	583,953 78
		Net Stocks,	Net Stocks,
		Jan. 31,	Feb. 28,
		Barrels.	Barrels.
DISTRICT.	PIPE.		
Oil City	Charley Run	3,844 21	2,100 00
Bradford	Tidewater	2,490,424 85	2,470,350 46
All Districts	United	31,790,241 74	32,980,430 67
Shaffer	Shaffer Run	27,441 60	27,388 23
Titusville	Octave Oil Co.	5,775 94	5,760 79
Franklin	Franklin Pipe	17,452 24	21,127 68
Total February, 1883			35,513,157 83
Total January, 1883			34,952,662 23
Total December, 1882			34,335,180 58
Total November			33,604,841 36
Total October			32,210,533 76
Total September			31,253,074 61
Total July			30,157,021 20
Total June			29,540,517 47
Total May			28,833,715 51
Total April			27,969,884 48
Total March			27,252,806 93
Total February			26,414,274 36
Total January			25,788,071 79
Increase, February, 1883			600,495 60
Increase, January, 1883			617,481 65
Increase December, 1882			730,239 22
Increase, November			838,195 69
Increase October			556,111 91
Increase September			957,485 53
Increase, August			1,096,026 41
Increase, July			616,503 73
Increase, June			706,801 96
Increase, May			863,631 03
Increase, April			717,077 55
Increase, March			838,532 57
Average increase per day, Feb., 1883			21,446 27
Average increase per day, January, 1883			19,918 76
Average increase per day, Dec., 1882			23,556 10
Average increase per day, November			18,537 06
Average increase per day, October			27,823 88
Average increase per day, September			27,874 64
Average increase per day, August			35,355 69
Average increase per day, July			19,887 21
Average increase per day, June			23,902 58
Average increase per day, May			27,859 06
Average increase per day, April			23,902 58
Average increase per day, March			27,049 44
Average increase per day, February			22,364 00
Average increase per day, January			12,174 73

By the 6th of November next the wells of the Forest field will probably not be considered of any value in estimating the daily yield of oil. For a few moments, however, they will serve as a scare. Looks like \$1.50 by that time.

FEBRUARY OFFICIAL QUOTATIONS FOR CRUDE.

THE following table shows opening, highest, lowest, and closing quotations at the Bradford Oil Exchange each day; also average for the month:

	Opening.	Highest.	Lowest.	Closing.	Avg.
1	102 ³ / ₄	103 ³ / ₄	101 ³ / ₄	102 ³ / ₄	102 ⁵ / ₈
2	102 ¹ / ₄	102 ³ / ₄	100 ³ / ₄	102 ¹ / ₄	101 ⁷ / ₈
3	102 ¹ / ₄	102 ¹ / ₄	101 ³ / ₄	101 ³ / ₄	101 ¹ / ₂
5	101	102	100 ¹ / ₂	101 ¹ / ₄	101 ¹ / ₄
6	101 ¹ / ₂	105	101 ¹ / ₂	101 ¹ / ₄	103 ¹ / ₄
7	104 ³ / ₄	104 ³ / ₄	103 ³ / ₄	103 ³ / ₄	104 ¹ / ₈
8	103 ³ / ₄	103 ³ / ₄	103	103 ¹ / ₄	103 ¹ / ₂
9	103 ¹ / ₂	104 ³ / ₄	103 ¹ / ₂	104	104 ¹ / ₈
10	103 ¹ / ₂	103 ³ / ₄	101 ³ / ₄	102 ³ / ₄	102 ⁵ / ₈
12	102 ¹ / ₂	102 ¹ / ₂	98 ³ / ₄	98 ³ / ₄	100 ¹ / ₂
13	98 ³ / ₄	101	96 ³ / ₄	100 ⁵ / ₈	98 ¹ / ₂
14	101	101 ¹ / ₄	98 ³ / ₄	98 ³ / ₄	99 ³ / ₄
15	98 ³ / ₄	100	97	99 ¹ / ₂	98 ¹ / ₂
16	101 ³ / ₄	103 ³ / ₄	101	101 ¹ / ₄	102 ¹ / ₄
17	101 ³ / ₄	101 ³ / ₄	100 ⁷ / ₈	100 ⁷ / ₈	101 ³ / ₈
19	100 ³ / ₄	100 ⁷ / ₈	99 ³ / ₄	100 ³ / ₄	100 ³ / ₄
20	100 ¹ / ₄	101 ³ / ₈	100 ¹ / ₄	100 ¹ / ₄	101
21	100 ¹ / ₄	100 ¹ / ₄	100 ¹ / ₈	100 ¹ / ₄	100 ¹ / ₂
22	Holiday				
23	100 ³ / ₄	100 ⁵ / ₈	98 ³ / ₄	98 ³ / ₄	99 ¹ / ₂
24	98 ³ / ₄	98 ³ / ₄	97 ³ / ₄	97 ³ / ₄	98 ³ / ₄
26	97 ³ / ₄	100	97 ³ / ₄	99 ¹ / ₄	99
27	100	101 ³ / ₄	99 ¹ / ₄	100 ¹ / ₂	100 ¹ / ₂
28	100 ⁷ / ₈	101 ¹ / ₂	98 ³ / ₄	98 ³ / ₄	100
General Average,					96 ⁷ / ₈

THE ALLEGANY FIELD.

TABLE SHOWING THE PROGRESS OF DEVELOPMENTS AND PRODUCTION OF THE ALLEGANY (N. Y.) OIL FIELD.

MONTH.	No. of wells completed.	Dry.	Production, bbls., of new wells.	Average per well.	Average daily Production of Field, Bbls.	Drilling.	Rigs.	Stocks in wooden tanks, Bbls.	Stocks in Iron tanks, Bbls.
Total, 1880	8	42	76	9 ¹ / ₂	76	4	6		
Jan'y, '81,	4	2	18	9	94	4	5		
February	4	1	24	6	112	4	8		
March	5	2	60	12	162	4	7		
April	3	1	20	10	170	5	6		
May	4	1	48	12	212	20	21		
June	14	8	130	9 ¹ / ₄	327	24	35		
July	22	5	275	12 ¹ / ₂	588	47	57		
August	53	17	586	11	1080	62	68		
September	63	11	910	14 ¹ / ₂	1740	105	118		
October	96	5	1432	15	2896	164	198	38000	108891
November	154	10	2732	17 ¹ / ₂	5180	155	200	84666	142216
December	196	2	5115	26 ¹ / ₁₀	8937	187	204	180200	169250
Jan. 31, '82,	162	2	3914	24 ¹ / ₁₀	11123	191	209	270860	243147
Feb. 28th	189	4	4154	21 ¹ / ₆	13200	212	201	373460	258247
March 31st	216	2	5580	25 ³ / ₈	16000	215	221	374490	359347
April 30th	257	6	6356	24 ³ / ₄	20760	226	230	400000	417347
May	265	7	5992	22 ³ / ₈	22438	179	191	440000	542347
June	163	11	3605	12	22220	94	153	475000	650000
July	81		1488	18 ¹ / ₃	19391	45	123	375000	550000
August	60	6	1199	20	17650	34	98	295927	550000
September	29	3	435	15	16320	39	58	275610	540000
October	45	3	660	4 ¹ / ₃	14802	70	51		
Nov. . .	75	7	983	13 ¹ / ₈	12900	67	82		
Dec. . .	63	2	722	11 ¹ / ₂	11600	54	66		
Jan 31, '83,	60	6	703	11 ¹ / ₂	11900	60	60	250000	
Feb. 28 . .	67	12	804	12	11100	64	70	200000	

MR. JAS. A. WAUGH, of the firm of Hilton & Waugh, brokers, has gone to New York to make that city headquarters. Bradford regrets the change in Mr. Waugh's mind, but he has left first-class representatives here, who will manage this end of the business in proper order—Mr. C. R. Huntly and

STATEMENT made by the United Pipe Lines July 10th, 1880, and enlarged to February 28th, 1883. It gives gross stocks, sediment and surplus, net stocks, outstanding balances, receipts (or runs) from all sources, and total deliveries, or shipments :

	Gross Stocks.	Sediment and Surplus.	Net Stocks.	Outstanding Acceptances.	Credit Balances.	Receipts from all Sources.	Total Deliveries.
1877—April	1,895,153.71	77,386.70	1,817,767.01	449,640.14	1,368,126.87	200,570.81	125,797.90
May	1,762,602.64	75,363.87	1,687,237.77	663,663.71	1,003,574.06	493,200.58	619,612.26
June	1,596,367.68	81,255.42	1,488,112.26	661,786.57	826,325.69	538,906.95	737,609.77
July	1,482,433.51	81,741.50	1,400,692.01	667,166.36	733,625.65	615,145.46	699,476.18
August	1,489,052.53	81,144.63	1,407,907.90	643,281.46	764,626.44	673,403.04	666,144.28
September	1,339,032.27	67,163.68	1,271,868.59	552,676.26	719,192.33	625,225.37	769,745.57
October	1,434,728.78	46,771.99	1,387,956.79	673,850.05	714,106.74	687,094.59	570,092.71
November	1,691,399.52	39,418.00	1,651,981.52	657,591.36	994,390.16	913,644.19	649,242.70
December	2,830,413.36	68,729.63	2,761,683.73	754,338.25	2,007,347.48	1,656,150.37	506,332.99
1878—January	3,124,641.15	72,453.43	3,052,187.72	864,711.41	2,187,476.31	872,681.18	715,149.78
February	3,439,526.98	82,452.66	3,357,074.32	1,404,292.13	1,952,782.19	1,030,688.44	720,478.14
March	3,940,000.65	92,963.06	3,847,037.59	1,487,430.50	2,359,598.09	1,196,251.26	701,681.27
April	4,335,274.84	133,935.76	4,201,340.08	1,615,791.19	2,585,548.89	1,137,359.40	778,050.53
May	4,609,681.45	150,117.76	4,459,563.69	2,065,333.31	2,394,230.38	1,104,352.40	843,081.33
June	4,719,699.25	181,800.03	4,537,899.22	1,950,420.81	2,587,478.41	1,092,604.02	1,004,474.55
July	4,885,851.72	229,080.78	4,656,770.94	2,078,466.56	2,578,301.38	1,258,648.45	1,108,074.33
August	4,571,658.59	217,085.19	4,354,573.40	2,064,590.75	2,289,982.64	1,195,268.67	1,496,009.04
September	4,410,061.84	223,088.86	4,186,972.88	2,705,853.95	2,479,119.03	1,182,118.57	1,318,265.33
October	4,072,267.43	234,050.86	3,838,216.57	1,517,484.27	2,321,092.27	1,271,174.73	1,564,984.43
November	4,083,972.42	216,655.36	3,867,317.06	1,784,443.35	2,082,873.77	1,159,623.71	1,129,047.42
December	4,098,200.92	201,470.36	3,896,730.62	1,741,311.07	2,155,419.55	972,338.83	924,035.93
1879—January	4,759,031.41	182,707.80	4,576,323.61	2,153,763.83	2,422,559.78	1,231,237.19	546,271.74
February	5,157,646.15	171,689.80	4,985,956.35	2,346,238.22	2,639,718.13	1,055,377.95	643,828.71
March	5,503,768.71	190,797.91	5,312,970.80	2,484,861.83	2,828,088.87	1,303,512.17	1,029,029.70
April	5,885,675.24	211,957.06	5,673,718.18	2,644,301.36	3,029,416.82	1,379,349.76	1,015,482.04
May	6,180,843.53	315,992.98	5,864,850.55	2,522,846.36	3,342,364.19	1,488,514.31	2,228,043.27
June	6,426,802.45	334,457.29	6,092,345.16	2,959,921.12	3,132,424.04	1,437,250.90	1,204,557.54
July	6,419,699.08	323,295.32	6,096,403.76	2,323,575.29	2,772,828.47	1,472,651.01	1,465,518.05
August	6,380,606.63	300,345.15	6,078,261.48	3,581,224.03	2,497,037.45	1,714,620.11	1,728,940.81
September	6,589,859.83	325,363.85	6,264,495.98	3,783,480.38	2,481,015.60	1,691,863.41	1,455,811.45
October	6,701,209.87	299,393.67	6,401,816.20	3,788,155.65	2,613,660.55	1,646,725.06	1,502,991.20
November	6,951,133.67	303,641.17	6,647,492.50	3,927,300.18	2,675,192.32	1,600,961.29	1,328,621.19
December	7,362,409.76	294,571.37	7,067,838.39	4,235,459.40	2,832,378.99	1,771,781.24	1,331,822.12
1880—January	7,735,257.38	295,517.60	7,439,739.78	4,436,788.55	3,002,951.25	1,832,963.04	1,145,194.98
February	8,187,012.49	322,568.93	7,864,443.56	4,602,286.49	3,262,157.07	1,607,663.89	1,178,111.92
March	8,621,097.49	351,130.35	8,269,967.14	4,811,894.33	3,458,072.81	1,815,133.31	1,396,037.88
April	9,662,354.59	388,558.16	9,273,796.43	5,846,536.60	3,427,259.83	1,739,297.37	723,794.73
May	10,306,078.79	454,193.73	9,851,885.06	6,361,320.05	3,490,565.01	1,552,240.91	975,061.26
June	11,266,771.77	477,431.60	10,789,340.08	7,397,131.89	3,392,208.19	1,781,937.29	848,339.08
July	12,039,010.00	475,446.56	11,563,563.44	8,125,241.25	3,438,332.19	1,890,161.44	1,095,528.25
August	12,749,623.28	462,987.28	12,286,636.00	8,635,394.80	4,651,241.20	1,904,452.70	1,177,448.42
September	13,618,276.03	382,398.71	13,236,327.32	9,287,193.94	3,949,133.38	2,075,105.26	1,115,184.71
October	14,020,877.32	391,331.55	13,629,545.84	9,448,615.77	4,180,930.07	1,999,487.98	1,598,285.06
November	14,656,891.55	341,262.67	14,315,628.88	10,038,824.08	4,231,804.80	1,859,991.50	1,064,146.39
December	15,369,758.67	361,184.83	15,008,573.84	10,913,283.49	4,095,290.35	1,987,283.54	1,207,928.35
1881—January	16,291,307.87	360,688.98	15,930,618.89	11,672,583.61	4,258,035.28	1,876,526.50	931,818.71
February	17,355,485.31	391,616.47	16,963,868.84	12,029,594.35	4,934,274.49	1,823,713.46	781,745.93
March	18,488,476.94	432,304.19	18,056,172.75	13,099,262.44	4,956,910.31	2,222,812.39	1,116,695.11
April	19,560,752.23	517,422.32	19,043,329.85	13,846,285.20	5,197,044.65	2,182,636.96	1,183,779.02
May	20,591,177.33	640,662.03	19,950,445.30	14,608,124.70	5,342,330.60	2,278,582.78	1,356,688.23
June	21,397,698.53	756,412.85	20,641,285.68	14,738,828.77	5,902,456.91	2,318,445.18	1,545,448.13
July	21,982,161.42	774,402.94	21,207,758.48	15,150,267.23	6,057,131.25	2,396,472.50	1,756,044.15
August	22,474,105.51	800,343.43	21,673,762.08	15,240,553.15	6,433,209.03	2,527,888.69	2,013,844.67
September	22,727,740.61	820,434.43	21,907,306.18	15,626,283.11	6,281,023.07	2,233,085.37	1,900,251.83
October	23,212,951.99	801,243.43	22,411,708.56	16,408,030.46	6,023,678.10	2,452,428.66	1,803,052.62
November	23,303,782.34	746,980.08	22,556,744.26	16,407,354.48	6,149,389.78	1,995,895.38	1,742,462.86
December	23,862,966.20	775,000.00	23,087,966.20	16,496,380.40	6,234,291.37	2,255,252.50	1,696,068.64
1882—January	24,243,382.26	762,111.53	23,481,270.73	17,788,245.97	5,693,024.76	1,984,325.23	1,547,945.23
February	24,704,933.81	765,000.00	23,939,933.81	18,541,340.52	5,831,402.36	2,062,742.98	1,601,191.43
March	25,663,298.81	887,210.88	24,776,087.93	19,039,760.73	5,736,327.20	2,305,538.30	1,453,354.46
April	26,519,252.22	993,150.92	25,526,101.30	19,963,183.00	5,562,918.30	2,145,965.63	1,381,093.10
May	27,518,619.53	1,161,789.36	26,356,830.17	20,622,520.38	5,734,309.79	2,339,170.39	1,496,566.23
June	28,311,328.53	1,344,852.60	26,966,475.93	21,282,495.62	5,683,980.31	2,419,934.81	1,796,712.55
July	28,955,781.79	1,330,493.28	27,625,288.51	22,037,273.31	5,588,015.20	2,599,606.49	1,982,695.57
August	30,198,208.64	1,370,660.62	28,827,548.02	22,094,815.90	6,732,732.10	3,176,053.39	1,870,745.07
September	31,068,182.32	1,473,646.07	29,594,536.25	23,824,360.13	5,770,176.12	2,569,036.25	1,799,316.21
October	31,390,694.71	981,249.05	30,409,445.66	24,031,440.00	5,647,240.00	2,369,517.35	1,834,217.13
November	31,900,475.68	894,397.98	31,006,077.70	25,722,724.08	5,283,353.62	1,970,991.00	1,157,166.36
December	33,472,761.77	1,054,108.94	32,418,651.83	26,423,935.50	5,994,710.33	1,811,882.59	1,142,218.09
January, 1883	33,772,761.77	1,054,109.94	32,718,651.83	26,423,935.50	5,994,716.33	1,811,882.59	1,422,218.09
February	34,190,452.76	1,201,023.69	32,989,429.07	26,618,762.40	6,367,668.27	1,631,015.80	1,041,012.67

Table Showing Total Production of Crude Petroleum in Pennsylvania and New York Oil Fields, and Consumption—From 1859 to 1881, Inclusive.

Year.	Oil Creek Division Bbbs.	Pithole District Bbbs.	Tid'ute and Fagundas District Bbbs.	Central All'g'ny Divis'n. Bbbs.	Butler, Armstr'g & Lower Alleghany Bbbs.	Clarion Division Bbbs.	Bradford Division Bbbs.	Bullion District Bbbs.	Warr'n Div. Bbbs.	Beaver Div. Bbbs.	Alleg. Co., N. Y., Div. Bbbs.	Yearly Total. All Districts. Bbbs.	Con-sumption. Bbbs.	Yearly Average Price.
1859	2000	...	...	...	...	...	...	...	...	...	...	2000	500	20.00
1860	500000	...	...	...	...	...	...	...	...	...	...	500000	300500	9.60
1861	2113609	...	...	...	...	...	...	...	...	...	...	2113609	1280000	.49
1862	3056690	...	...	...	...	...	...	...	...	...	...	3056690	1472000	1.05
1863	2611309	...	...	...	...	...	...	...	...	...	...	2611309	1992800	3.15
1864	2216109	...	...	...	...	...	...	...	...	...	...	216109	1946620	9.87½
1865	1585200	912500	20500	...	...	...	...	...	...	...	...	2518200	2238610	6.59
1866	2302700	1095000	490000	...	...	...	...	...	...	...	...	3887700	2574401	3.74
1867	2393300	814000	839000	...	...	...	...	...	...	...	...	4047200	2960561	.41
1868	2672617	445500	729000	26000	...	...	...	...	...	...	...	3873117	3404645	3.62½
1869	3462500	365000	535000	22500	45000	...	...	...	...	...	...	4430000	3716341	5.63½
1870	2745528	173585	723838	713150	918644	...	...	...	...	...	...	5274745	4562642	3.89
1871	2040263	182054	697887	1083386	1091458	310293	...	...	...	...	...	5405341	5178038	4.34
1872	1429685	145065	847199	881140	2658080	829079	...	...	...	...	...	6790248	5954742	3.64
1873	1094389	119864	895983	851934	4402563	2526231	...	...	...	...	...	9890964	7847953	1.83
1874	734247	55770	373325	564978	5160265	3921267	...	...	...	...	...	10809852	7875145	1.17
1875	504639	35130	351497	343905	4712702	2821214	18509	...	...	...	...	8787506	9256416	1.35
1876	611884	37450	354284	333640	4755623	2377700	382768	64220	51337	...	...	8968906	10414877	2.56½
1877	734858	60380	312700	474262	5431072	3021120	1465451	1306342	151371	62085	...	13019641	11977107	2.42
1878	686948	60000	308780	363710	4552815	2276408	6482400	505265	108300	92490	...	15437116	13783672	1.19
1879	389400	36500	227900	258652	2876787	1438342	14268945	289591	45550	82100	...	19913767	16851222	.85½
1880	335342	36500	168542	166143	1737969	868984	22343202	146672	91655	102956	...	25997965	18228905	9.94½
1881	293504	31938	146474	145374	1394706	844442	22817975	128338	438000	102956	607106	26950813	21263740	.85½
F	34516721	4706236	7022719	6228774	38737684	21235080	67779250	2440428	886213	442587	607106	186502798	155081437	3.92½

WELLS COMPLETED.

TOTAL NUMBER OF WELLS COMPLETED EACH MONTH IN THE YEARS NAMED.

A. D.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1870	131	131	114	135	164	182	161	156	135	144	112	79	1,644
1871	98	68	70	81	95	150	139	116	125	186	161	181	1,470
1872	48	118	98	122	130	98	131	117	96	101	41	101	1,201
1873	100	105	105	110	106	180	112	116	116	111	108	95	1,364
1874	108	111	108	110	112	113	124	102	108	117	112	116	1,341
1875	184	186	194	180	169	194	208	206	208	215	213	228	2,385
1876	235	236	248	207	200	258	243	274	223	270	278	271	2,943
1877	275	249	296	264	336	598	314	254	332	460	398	391	4,167
1878	279	238	202	411	468	278	210	180	176	232	241	160	3,075
1879	144	136	221	263	395	336	335	280	269	229	225	268	3,101
1880	311	238	358	494	435	315	339	359	359	360	334	309	4,211
1881	232	218	201	310	412	371	348	335	314	302	347	405	3,795
1882	357	359	389	449	457	328	188	248	169	116	150	122	3,332
1883	125	131											

Total for 13 years ended December 31st, 1882 34,029

UNION VS TIDEWATER.

The case in which the Tidewater Pipe Company is defendant and the Union Oil Company and other stockholders plaintiffs, was decided in Meadville on the 16th instant in favor of the defendants, Judge Church presiding. The case was mentioned in last issue and was investigated under an application for an injunction restraining the old managers from transacting business, the plea being that there was not only corruption in the management, but incapacity as well, and not only that, but that the Union party were entitled to the management because of an election of officers held by them on the day appointed for that

purpose by the Tidewater Company, the old managers having been unprepared for the election. As matters now stand the old managers have full power to proceed in the conduct of affairs as usual. They represent about one half the capital stock and the Union party the remainder.

THE Producers, Petroleum Exchange has met with many disasters during the past month in the form of "lay downs," but it seems to be still alive and active. On the 12th inst. seven members gave up the ghost against heavy odds.

THE Sherman well is reported dry beyond a doubt. A message to the AGE on the 16th states so unequivocally.

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PETROLEUM.

CHAPTER XVI.

Business of 1874—Low Prices and Depressed Spirits—The Pipe Line Mania and the Absorption Scheme—Where the Drilling was Done.

THE year 1874 opened with oil bringing about \$1.20 a barrel of 42 gallons. The business had anything therefore but a cheerful or promising aspect. There was plenty of territory to operate, but producers were not satisfied to proceed while prices remained so far below their estimate of the value of the commodity. As a consequence the number of wells completed each month was small when compared with the year following. January, 1874, gave the trade 108 new wells, half a dozen of which were dry; and 124 was the greatest number completed in any one month of the year, viz.: July, which rendered 124. The average price for the year was the lowest that the trade had witnessed for twelve months, the average having been only \$1.17. The year 1862 exceeded this in diminutiveness by seventeen cents. Thus it can be seen at a glance that the period which we propose to cover by this chapter was not one in which the oil trade reveled in great success and splendor. Nevertheless, it was productive of events by no means uninteresting or invaluable to the business.

GROWTH OF THE PIPE LINE SYSTEM.

The pipe line system, which by this time had become one of the most important branches of the petroleum industry, has not been dealt with in these chapters, simply because it is worthy of more than a passing notice. But few outside of the producing area have any conception of the extent to which these enterprises were pushed and how rapidly they invited and absorbed capital. And, moreover, it may also be truthfully stated that there are but few not directly connected with the oil business, even residents of the oil country, who could give an intelligent solution to the pipe line problem of the present day.

In former chapters the origin of the system

was fully discussed and the success of the first four lines was plainly shown. These, it will be seen by reference to Chapt. 4, Vol. 4, were the Pithole and Miller Farm, the Penn Transportation Company, the Shaffer Pipe Line, and that which extended from Titusville to Red Hot and Pleasantville. Following these came the Tidioute Pipe, organized during the summer of 1866 by the Grandins. This line extended from the Allegheny river at Tidioute to Triumph, and branched to five or six hundred wells. This line was afterward extended westward through the Jason, Alcorn, Henderson (or Clapp) and New London farms, and finally still later through the Enterprise region to Titusville, a distance of fifteen miles. It was a two inch line with a capacity per day of 2,000 barrels. Then came the Titusville and Red Hot pipe, under the direction of Mr. W. H. Abbott. This was constructed in 1868 and paid large dividends on the investment. Next came the Church Run pipe, which conducted the production of the Church Run section to the loading racks at Titusville, a distance of two and one-half miles.

Moreover, after the Butler and Armstrong field was proven a grand success, Parker City became headquarters for several pipe line organizations. Among them was the Grant Pipe, which had for a time almost a monopoly of the business arising from the developments on the Robinson, Grant and other farms west of Parker City; also, the Karns Pipe, constructed and managed by S. D. Karns, who was at that time (1872) a prominent and successful operator of that city. This line extended southwestward and had in view a connection with the wells of lower Butler. Almost at the same time the United Pipe lines was established, but was known as the Vandergrift & Foreman Pipe, having headquarters at Petrolia, Butler county. The Union Pipe line, however, was at that time the largest and most efficient in existence. Its headquarters was Parker City and its line extended into Clarion county, as well as into every nook and corner of Butler and Armstrong. It was owned principally by Philadelphia capitalists, John Potts, Esq., being the leading and controlling spirit. The line was first constructed in the interest and

for the especial benefit of the Empire Line of tank cars which transported the product from the delivery points in the region to the seaboard. This line for a few years controlled the piping of oil in that part of the oil region and regulated the shipping rates.

But there were the Karns, Grant and Vandergrift & Foreman lines in competition for the patronage of the producers of the lower end of Butler or that part extending from Petrolia south and west. This competition soon began to be felt by the stockholders in an unpleasant manner, and combination of interests began to be whispered. The result was the stronger absorbed the weaker and the Vandergrift & Foreman came out of the contest as the "United Pipe," with only one link except the Union, to complete the chain in the lower field—that is from Parker south—and this was the Ocean Pipe, an institution that fell a prey to the devourer very soon after its birth. The Ocean was organized under the direction of Phillips Bros., and was supported by a large number of producers who seemed already to feel the damaging effects of the combination. The Ocean erected receiving tanks and loading racks at the river at Parker and began to receive oil from wells along the course of Bear Creek. When, however, the managers desired shipping facilities by railroad, they found themselves completely "stalled." It was impossible to obtain cars from the railroad company, and the result was the Ocean became a part of the Union, and the field was left with two competing lines—the Union and the United.

During the fall of 1874 the producers of Clarion county, becoming alarmed at the gradual decline of competition in this particular branch of the business, came together in public assembly and resolved to establish a line of their own which should have for its destination the seaboard. A company was at once organized, with Mr. M. Hulings at the head and Captain J. T. Jones next in rank. The line was quickly laid and christened the Atlantic, and seemed to give promise of good success. The main office was at St. Petersburg, and the line extended through all parts of the district. Of course, the Union line contested every point that the Atlantic attempted to make. At the same time the parties who controlled the United already owned a line extending from Oil City to the Sandy section, a distance of about fifteen miles east. This sandy pool was of limited dimensions, but was fairly productive and heavily supplied with gas.

From there an extension of the line was made to the Clarion county field, giving the United a good foothold and direct connection with Oil City, the most convenient "port" for railroad shipping along the whole course of the Allegheny river.

Thus we find the pipe line business at the time of which we write—1874. Of its growth from that date we shall speak in a future chapter. It is perhaps enough to state that the convenience of pipe lines for the transportation of oil from the wells has been of incalculable benefit to the producers of oil. Their introduction of course closed up an immense source of income to laborers who found valuable employment in removing the oil from the wells in barrels. But the only result to them was, they were compelled to return to their homes whence they came and pursue the same course they had done before the oil development occurred. In some cases the pipe line business has been very remunerative, though in the great majority it has been quite the opposite. The first lines laid were all of two inch pipe, but experience taught that a larger size though more costly at first was the most profitable in the end, and pipe of three, four and six inch capacity was used as the source of supply to which they were attached demanded. At one time (1874-75) there existed fifteen distinct and separate pipe lines. These, however, have been absorbed by one institution under the title of "United Pipe Lines." To this, then, was established an opposition line in 1878, known at the present as the "Tidewater Pipe," of which more will be said in a future article.

The year 1874 may be set down as one of the most severe that the producers of petroleum ever witnessed in a financial sense. After the great "overflow" of Butler county it was natural that prices should decline, which they did to a distressing degree, the average for December being only 61½ cents a barrel. It was therefore not to be wondered at that the sheriffs of Butler, Armstrong and Clarion counties were compelled to engage a large force of deputies in order to keep pace with their increased business. The slaughter was great. On every prominent corner of the highways and every stump or lone tree by which the road happened to pass, was posted bills of sale by these officials. In those days the number of operators who proceeded on the cash-down system were indeed very few. The large majority were seeking wealth instead of investing it, and were by no means prepared for the calamities that followed the tread of low

prices. Perhaps four-fifths of all the operators engaged were in debt for two-thirds of the property they were possessed of when the depression began, and as usual creditors were unwilling to take chances or give further time. The results, therefore, can be easily determined.

During the fall season, moreover, attention was drawn to the territory surrounding Limestone, N. Y., where Job Moses, Esq., had acquired a small producing well. And, although there was very little accomplished in the way of making proper tests until the year following, and the date of the northern oil field development is usually set in 1875, it had been decided in 1874 in the minds of many very good judges of territory that oil existed in paying quantities in the latitude. About the same time the old Scrubgrass section, fifteen miles down the Allegheny river from Franklin, Pa., was revisited by wildcatters, among whom was I. E. Dean, Esq., at present a member of the McCalmont Oil Co. A 22° line was drawn from the old Foster wells in a southwesterly direction, and a well was located on a branch of Scrubgrass creek, about three miles west of the railroad station. This, however, was not completed till 1875, and of its result and effect upon the trade we shall have occasion to speak at greater length at some future time.

The territory south of Millerstown at the end of 1874 had become quite well circumscribed and the hosts of operators who had become satisfied that the limits were established, turned their eyes toward the north. Even the old Pit-hole section commanded attention once more. A well was sunk by some venturesome and reckless mortals about one mile east of the ancient and notorious city, which resulted in a hundred barrel producer. This caused a general rush of operators to the scene and enormous prices were paid for "locations" in close proximity to the new venture. Such was the character of the excitement that its place was entitled "Cash-Up." Numerous wells were at once projected, but on completion were, in nearly all cases, total failures, on account of which many others that had acquired an advanced stage were abandoned entirely. The phenomenon of a hundred-barrel well in a new locality, remote from developments, completely surrounded by dry holes, is difficult of explanation. Nevertheless, it existed at Cash-Up, and has never had a parallel in oil region lore.

During the year 1874 there were completed 1,341 wells, but the daily yield for December

was 4,700 barrels less than it was in December the year previous. This decline was caused, of course, by the natural shrinkage in the production of the old districts. The year passed without any important developments having been made, but the two previous years had been so prolific of such events that a rest was an absolute necessity for the life of the trade. Prices began early in '75 to improve, and a general feeling of hope prevailed. The daily supply was not increased a barrel until the breaking out in 1876 of the great Northern field.

FOREIGN NOTES.

AN American oil company is drilling some test wells at Hoheneggelsen in Hanover, but up to a very late date had not discovered sufficient evidence of "pay" to insure success. In speaking of the location selected by the Americans (who, by the way, are from Pennsylvania) the *Colourman's Journal* states that this spot is supposed to be particularly rich in oil, which conjecture has been corroborated by the fact of distinct traces of petroleum having been met at a depth of no more than 100 feet below the level of the ground. The Americans have gone to work very much more rationally than the several German companies that have hitherto sought to strike oil in the Oelheim district. Not having very extensive means at their command these companies were satisfied to carry their operations to a comparatively limited depth, while the Pennsylvanian and Canadian companies unhesitatingly proceed to very low depths. This has made their progress more successful. Should it then turn out in the end what the promoters anticipate, and should more land be required for prosecuting the operations, the Americans will have to pay very stiff for such land; for, whereas in the Oelheim and Luneburg districts land is to be had for about 13*l.* an acre, in the Hildesheim district it fetches from 45*l.* to 50*l.*, and there is little doubt but in the contemplated event speculation will tend to considerably the value of real property.

The petroleum discoveries at Wiese, on Lake Tegern, in Bavaria, begins to attract some attention. For five hundred years past the monks of St. Quirinus have been using the oil as a remedy, to which great virtues were attributed.

Idaho is the only state in the Union, except Connecticut, that has never blown a petroleum whistle. But it blows one of another species.

PETROLEUM REFINING.

BY LIVINGSTONE.

THE Pennsylvania petroleum (I have no reference to the small amount of heavy oil produced in the neighborhood of Franklin) has a specific gravity of from 41° to 48° , according to the producing localities. The Bradford or upper region produces the heavier oil, while the so-called "lower country" (Butler, Parker and Clarion) furnishes a superior article of from 46° to 48° gravity.

The conversion of crude into an illuminating oil—safe, odourless, and giving a brilliant light—is the function of the refiner. It is not my purpose to sketch the development of the refining business from its infancy—the advent, as we have seen, of the diminutive still of one-barrel capacity, which likely caused its manipulators more uneasiness than the colossal retorts of 2,000 or 3,000 barrels give us to-day; nor can I outline the numerous varieties of apparatus, with their trifling or important modifications, now in existence. No matter how much the different appliances vary in detail, the refining of petroleum finally resolves itself into the following principal operations:

1. Fractional distillation (evaporation and condensation).
2. Application of chemicals and washing with water.
3. Settling or clearing, and perhaps expelling dangerous, inflammable gases.

With but few exceptions the distillation of petroleum is effected in large iron stills by the application of direct heat. As a rule, an oil still and its principal appurtenances consist of the following parts:

The furnace or furnaces, which are also constructed like those of the boilers referred to.

A large outlet, or vapor-escape pipe, the prolongation of which is—

The long condensing pipe, or worm. For the purpose of having this immersed in water, it is generally placed in

A vessel, commonly called the condensing tank, which has to be constantly supplied with cold water to cool and condense the vapors travelling through the condensing coil. At the end of this coil the product is inspected at intervals as to gravity and color, "cut off," or separated, and accordingly led into different receiving tanks.

Before charging the still, it is desirable to have the crude oil as free from water and other impurities as possible.

Shortly after the still is fired up, evaporation of those exceedingly ethereal fluids known as cimogene, rhigolene and gasolene begins, which are allowed to escape in the gaseous form, as it is impracticable to condense them in an apparatus as here described.

Gradually, as the rising temperature increases evaporation, vapors are generated which readily condense into liquid, and the more readily as they become heavier with the progression of the process.

The early stages of the operation, during which the distillate flows clear and colorless, require comparatively little attention, but when the oil grows dark and heavy pains should be taken to further that process known as cracking or decomposing, which causes the heavy vapors to separate or split up into heavier and lighter ones, the former falling back into the still, the latter passing off through the vapor pipes. Thus the distillation is generally continued until the bulk in the still has been reduced to about six per cent., which residue has usually a specific gravity of 18° , and is called tar or residuum.

The different products of such a distillation are classified as follows:

Light Benzine or Naptha, density or gravity	$80-70^{\circ}$
Heavy Benzine or Naptha, density or gravity	$70-64^{\circ}$
Distillate for Refined Illuminating Oil, density or gravity	$64-41^{\circ}$
Tar, or Residuum (which, logically speaking, is no product), density or gravity	18°

This residuum is drawn off through a pipe near the bottom of the still.

The dividing lines are drawn rather arbitrarily, and I may remark that inasmuch as it is difficult, chemically speaking, to define the line between steel and iron, it is impossible to locate it between oil and benzine. While by proper manipulation we can extract a good and safe oil from benzine, it is, on the other hand, possible to transform crude oil almost entirely into benzine and tar.

Benzine, which serves an endless number of purposes is subject to various treatments, according to the wants to be satisfied. Giving it only a passing notice, I can state that benzine is the friend and foe of gas. In the character of a friend, it carburets gas of poor illuminating power; as a foe, its principal product, gasoline, enters the market as a strong competitor of gas, displacing it often from the streets in the most populous districts.

The distillate, when issuing from the condensing pipes, is, as a rule, impregnated with tarry matter and inflammable gases, imparting to it a greenish color and an offensive odor, to expel

which it is cast into a large vertical cylinder with conic bottom, called an agitator, where, by means of an air blast, the oil is thoroughly agitated, or shaken up, so that every particle of it is brought in contact with sulphuric acid. The objectionable impurities are thereby to a great extent destroyed, or precipitated with the refuse acid as soon as the agitating ceases. After this waste material—which, by the way, is valuable to the acid restoring factories, or for fertilizing purposes—has been drawn off, the oil in the agitator is subjected to a thorough wash with water, which is followed by an agitation with a solution of caustic soda or some other alkali for the purpose of neutralizing any trace of acid which the water may not have affected. The drawing off of the waste alkali water generally finishes the process in the agitator, whence the oil is transferred into open tanks to settle and brighten, and if necessary, to have by various devices its fire-test improved, preparatory to entering upon its mission.

By fire-test is understood the temperature of the oil at which it gives off dangerous, inflammable gases.

PETROLEUM vs. GAS.

MR. R. A. COOPER a manufacturer of Norwich, England, recently wrote to a local paper as follows:

As the gas question has recently excited considerable public attention in Norwich, the following facts may be of interest to your readers, and assist in showing the true value of gas as a lighting medium as compared with petroleum. On September 27 last the gas company, as a short and easy method of settling a disputed question of account, cut off the gas at each of my three places of business and my dwelling-house, previously giving me one day's notice, and compelled me, with considerable reluctance, to resort to petroleum for light. Until then I held, without any questioning doubt, the respectable superstition that gas is superior to petroleum, and should probably have never changed if the gas company had not kindly compelled me to do so. I find petroleum to be far better than gas for all lighting purposes, much more agreeable and vastly cheaper; but I have not made it a success for heating. My gas bill for the year ending September 27, was 566*l.* 2*s.* 11*d.*, less 10 per cent. discount, or 509*l.* 10*s.* 8*d.* net, including 6*l.* 14*s.* for rent of meters. This represented the cost of an alleged consumption of 3,013,500 cubic feet of gas, at 3*s.* 9*d.* per 1,000

feet for the first three quarters, and 3*s.* 6*d.* for the last quarter of the year. At Bank Plain I fitted up with glass lamps without any delay, but at the workshop I had to make tin lamps, and was not completely supplied until November 15, and, therefore, could not accurately test the relative cost of gas and petroleum before. In the six weeks after November 15, I used rather less than ten barrels of petroleum oil, say about 400 gallons, which cost 14*l.* These six weeks comprise the shortest days in the year, when we work more over time than at any similar period and use much more light. It will therefore be evidently fair to reckon the last six weeks of the quarter as at least equal to the first seven weeks, and then the total consumption for the whole quarter would be less than twenty barrels of petroleum, costing 28*l.*; against a gas bill for the similar period of the previous year of 152*l.* 3*s.* 6*d.*, or of 218*l.* 1*s.* 11*d.* from December 25, 1879, to March 25, 1880. From the gas bills 10 per cent. must be deducted, and to the petroleum account about 3*l.* must be added for extra coke for heating, and a small sum for wicks, lamps, chimneys, breakage and labor, the whole of which would be more than covered by adding 12*l.* to the cost of oil, making a total expenditure of 40*l.* for the superior light from petroleum, instead of the extravagant sums stated above as the cost of gas. I find as a rule that my gas bills for the two summer quarters average to be about half the sum of the two winter quarters; and, therefore, I expect to require about sixty barrels of petroleum for the year's supply, and that the total cost will be about 120*l.* for the year, instead of 509*l.* 10*s.* 9*d.* which I paid for gas last year. At 9*d.* per 1,000 cubic feet, 3,013,500 feet of gas cost 113*l.*, and as I have shown that 120*l.* expended in oil, coke, labor, &c., will produce a better light than this quantity of gas, it is clear that to the consumer gas is not worth 10*d.* per 1,000 cubic feet, although it may cost the producer more. It appears plain to me that all discontented consumers of gas have the remedy in their own hands. Instead of grumbling at the price of gas, why not try petroleum, and see which is cheapest and best? I venture to say that a trial will settle the question.

W. MURPHY, the famous wildcatter of Forest county, should be corraled at once, or he may ruin the business. He has an alarming faculty for striking the right spot; in other words he has a first-class nose for smelling grease.

STATEMENT made by the United Pipe Lines July 10th, 1880, and enlarged to March 31st, 1883. It gives gross stocks, sediment and surplus, net stocks, outstanding balances, receipts (or runs) from all sources, and total deliveries, or shipments :

	Gross Stocks.	Sediment and Surplus.	Net Stocks.	Outstanding Acceptances.	Credit Balances.	Receipts from all Sources.	Total Deliveries.
1877—April	1,895,153.71	77,386.70	1,817,767.01	449,640.14	1,368,126.87	200,570.81	125,797.90
May	1,762,602.64	75,363.87	1,687,237.77	663,663.71	1,003,574.06	493,200.58	619,612.26
June	1,596,367.68	81,255.42	1,488,112.26	661,786.57	826,325.69	538,906.95	737,609.77
July	1,482,433.51	81,741.50	1,400,692.01	667,166.36	733,625.65	615,145.46	699,476.18
August	1,489,052.53	81,144.63	1,407,907.90	643,281.46	764,626.44	673,403.04	666,144.28
September	1,339,032.27	67,163.68	1,271,868.59	552,676.26	719,192.33	625,225.37	769,745.57
October	1,434,728.78	46,771.99	1,387,956.79	673,850.05	714,106.74	687,094.59	570,092.71
November	1,691,399.52	39,418.00	1,651,981.52	657,591.36	994,390.16	913,644.19	649,242.70
December	2,830,413.36	68,729.63	2,761,685.73	754,338.25	2,007,347.48	1,656,150.37	506,332.99
1878—January	3,124,641.15	72,453.43	3,052,187.72	864,711.41	2,187,476.31	872,681.18	715,149.78
February	3,439,526.98	82,452.66	3,357,074.32	1,404,292.13	1,952,782.19	1,030,688.44	720,478.14
March	3,940,000.65	92,963.06	3,847,037.59	1,487,430.50	2,359,598.09	1,196,251.26	701,681.27
April	4,335,274.84	133,935.76	4,201,340.08	1,615,791.19	2,585,548.89	1,137,359.40	778,050.53
May	4,609,681.45	150,117.76	4,459,563.69	2,065,333.31	2,394,230.38	1,104,352.40	843,081.33
June	4,719,699.25	181,800.03	4,537,899.22	1,950,420.81	2,587,478.41	1,092,604.02	1,004,474.55
July	4,885,851.72	229,080.78	4,656,770.94	2,078,466.56	2,578,301.38	1,258,648.45	1,108,074.33
August	4,571,658.59	217,085.19	4,354,573.40	2,064,590.75	2,289,982.64	1,195,268.67	1,496,009.04
September	4,410,061.84	225,088.86	4,184,972.88	2,705,853.95	2,479,119.03	1,182,118.57	1,318,265.33
October	4,072,267.43	234,050.89	3,838,576.54	1,517,484.27	2,321,092.27	1,271,174.73	1,564,984.43
November	4,083,972.42	216,655.30	3,867,317.12	1,784,443.35	2,082,873.77	1,159,623.71	1,129,047.42
December	4,098,200.92	201,470.30	3,896,730.62	1,741,311.07	2,155,419.55	972,338.83	924,035.93
1879—January	4,759,031.41	182,707.80	4,576,323.61	2,153,763.83	2,422,559.78	1,231,237.19	546,271.74
February	5,157,646.15	171,689.80	4,985,956.35	2,346,238.22	2,639,718.13	1,055,377.95	643,828.71
March	5,503,768.71	190,797.91	5,312,970.80	2,484,861.83	2,828,088.87	1,363,512.17	1,029,029.70
April	5,885,675.24	211,957.06	5,673,718.18	2,644,301.36	3,029,416.82	1,379,349.76	1,015,482.04
May	6,180,843.53	315,992.98	5,864,850.55	2,522,846.36	3,342,364.19	1,488,514.31	2,228,043.27
June	6,426,802.45	334,457.29	6,092,345.16	2,959,921.12	3,132,424.04	1,437,250.90	1,204,557.54
July	6,419,699.08	323,295.32	6,096,403.76	2,323,575.29	2,772,828.47	1,472,651.01	1,465,518.05
August	6,380,606.63	300,345.15	6,078,261.48	3,581,224.03	2,497,037.45	1,714,620.11	1,728,940.81
September	6,589,859.83	325,363.85	6,264,995.98	3,783,480.38	2,481,015.60	1,691,863.41	1,455,811.45
October	6,701,209.87	299,393.67	6,401,816.20	3,788,155.65	2,613,660.55	1,646,725.06	1,502,991.20
November	6,951,133.67	303,641.17	6,647,492.50	3,927,300.18	2,675,192.32	1,600,961.29	1,328,621.19
December	7,362,409.76	294,571.37	7,067,838.39	4,235,459.40	2,832,378.99	1,771,781.24	1,331,822.12
1880—January	7,735,257.38	295,517.60	7,439,739.78	4,436,788.55	3,002,951.25	1,832,963.04	1,145,194.98
February	8,187,012.49	322,568.93	7,864,443.56	4,602,286.49	3,262,157.07	1,607,663.89	1,178,111.92
March	8,621,097.49	351,130.35	8,969,967.14	4,811,894.33	3,458,072.81	1,815,133.31	1,396,037.88
April	9,662,354.59	388,558.16	9,273,766.43	5,846,536.60	3,427,259.83	1,739,297.37	723,794.73
May	10,306,078.79	454,193.73	9,851,885.06	6,361,320.05	3,490,565.01	1,552,240.91	975,061.26
June	11,266,771.77	477,431.60	10,789,340.08	7,397,131.89	3,392,208.19	1,781,937.29	848,339.08
July	12,039,010.00	475,446.56	11,563,563.44	8,125,241.25	3,438,332.19	1,890,161.44	1,095,528.25
August	12,749,623.28	462,987.28	12,286,636.00	8,635,394.80	4,651,241.20	1,904,452.70	1,177,448.42
September	13,618,276.03	382,398.71	13,236,327.32	9,287,193.94	3,949,133.38	2,075,105.26	1,115,184.71
October	14,020,877.32	391,331.55	13,629,545.84	9,448,615.77	4,180,930.07	1,999,487.98	1,598,285.06
November	14,656,891.55	341,262.67	14,315,628.88	10,038,824.08	4,231,804.80	1,859,991.50	1,064,146.39
December	15,369,758.67	361,184.83	15,008,573.84	10,913,283.49	4,095,290.35	1,987,283.54	1,207,928.35
1881—January	16,291,307.87	360,688.98	15,930,618.89	11,672,583.61	4,258,035.28	1,876,526.50	931,818.71
February	17,355,485.31	391,616.47	16,936,868.84	12,029,594.35	4,934,274.49	1,823,713.46	781,745.93
March	18,488,476.94	432,304.19	18,056,172.75	13,009,262.44	4,956,910.31	2,222,812.39	1,116,695.11
April	19,560,752.23	517,422.38	19,043,329.85	13,846,285.20	5,197,044.65	2,182,636.96	1,183,779.02
May	20,591,177.33	640,662.03	19,950,455.30	14,608,124.70	5,342,330.60	2,278,582.78	1,356,688.23
June	21,397,698.53	756,412.85	20,641,285.68	14,738,828.77	5,902,456.91	2,318,445.18	1,545,448.13
July	21,982,161.42	774,402.94	21,207,758.48	15,150,267.23	6,057,131.25	2,396,472.50	1,756,044.15
August	22,474,105.51	800,343.43	21,673,762.18	15,240,553.15	6,433,209.03	2,527,888.69	2,013,844.67
September	22,727,740.61	820,434.43	21,907,306.18	15,626,283.11	6,281,023.07	2,233,085.37	1,900,251.83
October	23,212,951.99	801,243.43	22,431,708.56	16,408,030.46	6,023,678.10	2,452,428.66	1,803,052.62
November	23,303,782.34	746,980.08	22,556,744.26	16,407,354.48	6,149,389.78	1,995,895.38	1,742,462.86
December	23,862,966.20	775,000.00	23,087,966.20	16,496,380.40	6,234,291.37	2,255,252.50	1,696,068.64
1882—January	24,243,382.26	762,111.53	23,481,270.73	17,788,245.97	5,693,024.76	1,984,325.23	1,547,945.23
February	24,704,933.81	765,000.00	23,939,933.81	18,541,340.52	5,831,402.36	2,062,742.98	1,601,191.43
March	25,663,298.81	887,210.88	24,776,087.93	19,039,760.73	5,736,327.20	2,305,538.30	1,453,354.46
April	26,519,252.22	993,150.92	25,526,101.30	19,963,183.00	5,562,918.30	2,145,965.63	1,381,093.10
May	27,518,619.53	1161,789.36	26,356,830.17	20,622,520.38	5,734,309.79	2,339,170.39	1,496,566.23
June	28,311,328.53	1344,852.60	26,966,475.93	21,282,495.62	5,683,980.31	2,419,934.81	1,796,712.55
July	28,955,781.79	1330,493.28	27,625,288.51	22,037,273.31	5,588,015.20	2,599,606.49	1,982,695.57
August	30,198,208.64	1370,660.62	28,827,548.02	22,094,815.90	6,732,732.10	3,176,053.39	1,870,745.07
September	31,068,182.32	1473,646.07	29,594,536.25	23,824,360.13	5,770,176.12	2,569,036.25	1,799,316.21
October	31,390,694.71	981,249.05	30,409,445.66	24,031,440.00	5,647,240.00	2,369,517.35	1,834,217.13
November	31,900,475.68	894,397.98	31,006,077.70	25,722,724.08	5,283,353.62	1,970,991.00	1,157,166.36
December	32,859,088.91	1,068,347.17	31,790,741.74	26,420,570.77	6,369,679.97	2,013,995.86	964,908.48
January, 1883	33,772,761.77	1,054,109.94	32,718,651.83	26,423,935.50	5,994,716.33	1,811,822.50	1,422,218.09
February	34,190,453.76	1,204,023.09	32,986,430.67	26,618,762.40	6,367,668.27	163,015.80	1,043,912.67
March	34,655,372.56	1,543,361.15	33,112,011.44	25,853,292.32	7,258,719.12	1,783,537.51	1,378,966.55

PERSONAL SCRIP.

Mr. John J. Carter, who has amassed a comfortable fortune in the oil business during the past five years, has turned his attention to rail-roading of the narrow gauge type. He is a large stockholder in several of these which go out from Bradford, and presides over the destinies of two or three branches. Mr. Carter is a self-made man, and has exhibited a business capacity and an amount of skill in the conduct of public affairs rarely equalled even by those who have had a life experience. His abilities as a legislator might some day be recognized also.

MR. DANIEL O'DAY, one of the leading lights of the United Pipe Line, is one of those business men who advance on merit. In 1868 Mr. O'Day occupied an humble position under W. J. Brundred, of Oil City, who was at that time superintendent of the Empire line of oil tank cars. But Mr. O'Day's capacity for a broader and higher plane was always apparent, and it required only the opportunity for this to be proven. The opportunity came in the need of an experienced person to assist in the management of the pipe line system, which resulted in the United Pipe Lines.

MR. DAVID KIRK, President of the McCalmont Oil Co., which is rapidly becoming a strong competitor in the producing branch of the trade, for at least second place, could relate an experience that would be of interest. His reputation as a business man has never been questioned and success has crowned nearly every effort put forth for years past. He, in company with Dillworth, of Pittsburg, at one time founded a "city" on the line of the West Penn R. R., at the point where the 22 degree belt from Millers-town should pass, and gave it the euphonic title of "Great Belt City." A farm was purchased and cut into lots, with streets in proper order, and a day being set for public sale of building sites hundreds of people were on the ground ready to purchase. The result was a town of considerable proportions was erected and considerable money was realized by the astute projectors. We mention this as one item in a business man's career to show that he possesses more than ordinary business ability, without which is seldom acquired, or if acquired is seldom retained. Mr. Kirk has had aspirations for political honors, but has not succeeded in that as well as in his regular calling—oil producer; as such he is a success.

OF the many oil producers who have forced success out of adversity none have exceeded Mr. Geo. V. Forman, now of Olean, N. Y. Three years ago Mr. F. through almost unavoidable agencies fell a victim to serious losses to such an extent that he was compelled to make an assignment. To-day he counts his *coin* by the hundreds of thousands. This was accomplished by his possessing extraordinary faculties for determining the future of new oil fields, where he seemed always to obtain the right kind of a foothold early in its history.

Occasionally we hear the Virginia note in the song of the new Petroleum fields. Virginia is virgin territory and quite innocent as regards the effects it is to have upon the trade in the near future.

MYSTIFYING WELLS.

The disgusting practice of mystifying wells in Forest county still continues. And it is still more disgusting that the oil trade should be led around by the nose by "things" that should have no more influence upon it either way than the quacking of a duck upon an Egyptian mummy. If there are those who cannot see that Forest and Warren counties are destined to produce a considerable quantity of oil, they should proceed at once to some intelligence office and inquire the direction to mental capacity. It is not likely that one or two gushers in a locality will form the sum total of paying wells. It must be expected that the Balltown pool will be enlarged somewhat and that there other spots not yet discovered in that country that may prove equally as good as any that have yet been discovered. After all that, then what? A person capable of taking a corporation view of anything seen or unseen, would say in reply, "no danger yet." What a sorry plight the host of operators who are now in search of some spot upon which to drill, would find themselves in should no new territory be opened.

OHIO oil wells are tolerable good stayers. Some of the first drilled in that country in 1863 are still yielding a small quantity of oil.

It is talked in private oil circles that there are four wildcats in Forest county drilled to the top of the sand and plugged, and are ready to pounce upon the trade at any minute. This sounds like the gentle voice of a bear—some fellow who "bought him short."

CRUDE OIL MARKET.

MONTHLY AND YEARLY AVERAGE PRICE OF PIPE LINE CERTIFICATES OR CRUDE OIL AT THE WELLS, IN BARRELS OF 42 GALLONS EACH.

A. D.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	D'emb'r	Yearly
	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Avg'es.
1859.									20.00	20.00	20.00	20.00	20.
1860.	19.25	18.00	12.62 1/2	11.00	10.00	9.50	8.62 1/2	7.50	6.62 1/2	5.50	2.75	2.75	9.
1861.	1.00	1.00	1.00	.62 1/2	.50	.50	.50	.25	.20	.10	.10	.10	.
1862.	.10	.15	.22 1/2	.50	.85	1.00	1.25	1.25	1.25	1.75	2.25	2.25	1.
1863.	2.25	2.50	2.62 1/2	2.87 1/2	2.87 1/2	3.00	3.25	3.37 1/2	3.50	3.75	3.85	3.95	3.
1864.	4.09	4.37 1/2	5.50	6.56	6.87 1/2	9.50	12.12 1/2	10.12 1/2	8.87 1/2	7.75	10.00	11.00	9.15 1/2
1865.	8.25	7.50	6.00	6.00	7.37 1/2	5.62 1/2	5.12 1/2	4.62 1/2	6.75	8.12 1/2	7.25	6.50	6.87
1866.	4.50	4.40	3.75	3.95	4.50	3.87 1/2	3.00	3.75	4.50	3.39	3.10	2.12 1/2	3.59
1867.	1.87 1/2	1.85	1.75	2.07 1/2	2.35	1.90	2.62 1/2	3.15	3.40	3.55	2.50	1.87 1/2	2.74
1868.	1.95	2.00	2.55	2.82	3.75	4.50	5.12 1/2	4.57 1/2	4.00	4.12 1/2	3.75	4.35	3.41 1/2
1869.	5.75	6.95	6.00	5.70 1/2	5.35	4.95	5.37 1/2	5.57 1/2	5.50	5.50	5.80	5.12m	5.63 3/4
1870.	4.52 1/2	4.52 1/2	4.45	4.22 1/2	4.40	4.17 1/2	3.77 1/2	3.15	3.25	3.27 1/2	3.22 1/2	3.40	3.89
1871.	3.82 1/2	4.38	4.25	4.01	4.60	3.85 1/2	4.79	4.66	4.65	4.82 1/2	4.25	4.00	4.34
1872.	4.92 1/2	3.80	3.72 1/2	3.52 1/2	3.80	3.85	3.80	3.58 1/2	3.25	3.15	3.83 1/2	3.32 1/2	3.64
1873.	2.60	2.20	2.12 1/2	2.30	2.47 1/2	2.22 1/2	2.00	1.42 1/2	1.15	1.20	1.25	1.00	1.83
1874.	1.20	1.40	1.60	1.90	1.62 1/2	1.32 1/2	1.02 1/2	.95	.95	.85	.55	.61 1/2	1.17
1875.	1.03	1.52 1/2	1.75	1.36 1/2	1.40	1.26 1/2	1.09	1.13	1.33	1.32 1/2	1.44	1.55	1.35
1876.	1.80	2.00	2.01	2.02 1/4	1.90 1/2	2.01 3/4	2.24 1/2	2.71	3.81	3.37 1/2	3.11	3.73	2.56 1/4
1877.	3.53 1/4	2.70	2.67 1/2	2.58	2.24	1.94 3/8	2.07 1/2	2.51	2.38	2.56 3/4	1.91	1.80	2.42
1878.	1.43	1.65 1/4	1.59	1.37 1/2	1.35 1/4	1.14	.98 3/4	1.01 3/8	.86 1/2	.82 1/2	.89 3/8	1.16	1.19
1879.	1.03	.98	.86 1/4	.78 1/2	.76	.68 3/8	.69 3/8	.67 1/8	.69 1/2	.88 1/2	1.05 5/8	1.18 1/8	.85 7/8
1880.	1.10 1/4	1.03 1/8	.88 1/4	.78	.80	1.00	1.06 1/4	.91	.96	.96 7/8	.91 7/8	.91 5/8	.94 1/2
1881.	.95 1/2	.90 3/8	.83 3/8	.86 3/4	.81 7/8	.81 1/4	.76 7/8	.78 5/8	93.3-16	.94 3/4	.83	.84	.85 3/4
1882.	.83 1/4	.85 3/4	.80 7/8	.78 1/2	.69 7/8	.54 1/2	.56 7/8	.58 3/4	.74 1/8	.94	1.27 1/8	.94 3/4	.79 3/8
1883	.91 1/4	.96 7/8	.97 1/2										

PRODUCTION TABLE.

SHOWING THE TOTAL DAILY NET YIELD OF THE PENNSYLVANIA OIL FIELD FROM SEPTEMBER, 1859, TO NOVEMBER 30th, 1882, IN BARRELS OF 42 GALLONS EACH.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals.
1859									10	15	18	28	2,173
1860	30	50	89	215	500	1,000	2,000	2,500	3,000	3,500	2,000	3,000	547,439
1861	3,201	4,041	4,800	5,400	6,000	6,100	7,100	8,500	7,000	5,150	5,514	6,716	2,119,045
1862	6,000	5,300	7,400	8,000	9,400	9,000	8,500	11,000	13,000	10,565	8,053	7,238	3,153,183
1863	6,200	6,400	7,000	5,500	6,000	7,603	7,022	8,100	9,200	7,120	9,500	10,260	2,667,543
1864	8,100	6,300	4,500	5,000	7,000	5,100	5,600	5,700	7,180	5,545	10,100	10,320	2,215,150
1865	5,900	5,800	5,000	7,500	8,000	8,000	7,400	6,350	6,400	6,800	7,600	9,350	2,560,200
1866	9,200	9,100	5,000	7,100	8,100	9,500	9,350	9,440	12,000	10,400	11,000	11,165	3,385,105
1867	10,900	8,100	9,000	10,100	10,500	9,000	10,100	10,000	10,100	7,660	9,155	8,313	3,458,113
1868	8,200	9,400	8,100	9,300	11,000	12,400	13,000	11,800	10,250	8,225	7,580	7,150	3,540,670
1869	8,100	8,500	10,000	11,000	13,000	13,000	13,560	13,000	13,500	12,500	11,200	10,625	4,186,475
1870	11,348	11,802	11,509	12,400	15,990	13,400	13,800	15,950	18,203	18,000	17,061	15,990	5,308,046
1871	13,500	13,300	13,082	12,950	13,054	13,882	14,900	15,866	15,555	15,889	15,599	15,841	5,278,072
1872	17,943	17,894	15,680	16,221	17,402	12,140	16,933	17,440	16,598	18,450	25,942	20,630	6,505,774
1873	20,550	21,460	21,830	22,260	24,632	26,361	23,406	30,900	32,500	31,343	33,584	34,680	9,849,508
1874	32,800	30,940	29,760	28,104	29,442	31,222	33,987	32,000	29,461	29,944	29,231	28,101	11,102,114
1875	27,900	26,509	26,012	23,009	23,000	23,805	24,991	23,940	23,800	23,900	23,821	23,594	8,948,749
1876	23,102	25,440	13,560	23,800	24,628	24,400	24,890	25,300	25,900	26,400	26,500	25,900	9,142,940
1877	26,930	27,560	28,860	32,060	36,000	37,440	39,210	42,100	41,321	41,200	39,900	40,120	13,230,330
1878	39,200	39,900	39,200	40,100	41,111	40,820	41,200	42,900	43,999	44,480	45,200	43,900	15,272,491
1879	44,000	43,830	47,960	50,810	52,911	55,600	56,911	59,940	61,498	60,980	58,750	58,231	19,835,903
1880	59,982	63,890	66,215	68,063	72,080	73,104	73,794	74,980	71,941	77,491	76,112	74,080	26,086,692
1881	73,030	69,060	73,900	75,245	79,000	82,460	81,900	79,100	78,231	77,971	77,892	76,642	28,136,353
1882	75,028	74,910	74,751	76,690	78,601	80,469	90,020	98,739	79,685	72,805	59,513	66,980	28,452,834
1883.....	62,600	58,883											
Total twenty-four years to December 31st, 1882													215,984,901
Average per day for twenty-four years.....													24,541
Average per day for 1882													77,950

A spout for oil cans, which is of strong and durable make, has been patented by Mr. John Kaye, of Cardington, Pa. The invention consists in winding wire closely around the spout of oil cans and soldering the upper end of the wire to the body of the spout.

Capt. J. T. Jones, the venerable head of the Bradford Oil Co., is one of the most solid and persistent bulls of the oil trade. If the market should rise some day to \$1.75, he would still elevate his horns and roar the bottom had been reached.

REPORT OF OIL OPERATIONS for MARCH.

Wells Completed.

BRADFORD.

District.	Wells.	Prod'n.	Dry.
E. & W. Branches	22	510	.
Kendall Creek	2	20	.
Foster Brook	6	75	.
Cole Creek & B.	6	240	.
Indian Creek	.	.	.
Kinzua	1	25	.
Four Mile	2	25	.
Totals	39	895	.

ALLEGANY.

Alma	8	109	.
Bolivar	14	132	.
Wirt	.	.	.
Genesee	33	520	.
Clarksville	2	16	.
Scio	14	160	2
Totals	71	937	.

WARREN AND FOREST.

Tiona	3	50	.
Clarendon	3	15	.
Forest and Sheffield	15	2250	6
Totals	21	2315	6

LOWER FIELD.

Butler and Armstrong	1	.	1
Bald Ridge	.	.	.
Venango County	6	85	.
Clarion	3	10	1
Totals	10	95	2

GRAND TOTALS.

Warren and Forest	21	2315	6
Allegany	71	937	.
Bradford	39	895	.
Totals	141	4242	8
Totals, February	131	1911	23

Drilling Wells.

District.	Drilling.	Rigs.	Total.
East Branch	15	5	20
Big Shanty	25	12	37
Quintuple Tract and West Branch	1	10	11
Kendall Creek	3	8	11
Foster Brook	3	7	10
Cole Creek and Bing	2	3	5
Indian Creek	1	3	4
Four Mile	2	1	3
Kinzua	4	3	7
Elk County	3	2	5
Lower McKean County	1	1	2
Totals	60	55	115

ALLEGANY FIELD.

Alma	16	24	40
Bolivar	16	21	37
Wirt	.	1	1
Genesee	34	46	80
Clarksville	1	2	3
Scio	14	16	30
Totals	81	110	191

WARREN AND FOREST.

Tiona	6	8	14
Clarendon	2	4	6
Cherry Grove	1	1	2
Sheffield and Forest County	39	19	58
Totals	48	32	80

LOWER FIELD.

Venango County	5	9	14
Butler County	1	3	4
Bald Ridge	17	8	25
Totals	23	20	43
Grand Totals Bradford	60	55	115
Allegany	81	110	191
Warren and Forest	48	32	80
	212	217	429
Totals, February	149	155	304
Increase, February	63	62	125

THE ALLEGANY FIELD.

TABLE SHOWING THE PROGRESS OF DEVELOPMENTS
AND PRODUCTION OF THE ALLEGANY (N. Y.)
OIL FIELD.

MONTH.	No. of wells com- pleted.	Dry.	Production, bbls., of new wells.	Average per well.	Average daily Pro- duction of Field, Bbls.	Drilling.	Rigs.	Stocks in wooden tanks, Bbls.	Stocks in Iron tanks, Bbls.
Total, 1880	8	42	76	9½	76	4	6	.	.
Jan'y, '81,	4	2	18	9	94	4	5	.	.
February	4	1	24	6	112	4	8	.	.
March	5	2	60	12	162	4	7	.	.
April	3	1	20	10	170	5	6	.	.
May	4	1	48	12	212	20	21	.	.
June	14	8	130	9¼	327	24	35	.	.
July	22	5	275	12½	588	47	57	.	.
August	53	17	586	11	1080	62	68	.	.
September	63	11	910	14½	1740	105	118	.	.
October	96	5	1432	15	2896	164	198	38000	108891
November	154	10	2732	17½	5180	155	200	84666	142216
December	196	2	5115	26½	8937	187	204	180200	169250
Jan. 31, '82,	162	2	3914	24½	11123	191	209	270860	243147
Feb. 28th	189	4	4154	21.97	13200	212	201	373460	258247
March 31st	216	2	5580	25.83	16000	215	221	374490	359347
April 30th	257	6	6356	24¾	20760	226	230	400000	417347
May	265	7	5992	22¾	22438	179	191	440000	542347
June	163	11	3605	12	22220	94	153	475000	650000
July	81	.	1488	18½	19391	45	123	375000	550000
August	60	6	1199	20	17650	34	98	295927	550000
September	29	3	435	15	16320	39	58	275610	540000
October	45	3	660	4½	14802	70	51	.	.
Nov. . .	75	7	983	13½	12900	67	82	.	.
Dec. . .	63	2	722	11½	11600	54	66	.	.
Jan. 31, '83.	60	6	703	11½	11900	60	60	250000	.
Feb. 28 . .	67	12	804	12	11100	64	70	200000	.
Mar. 31 . .	71	0	937	13¼	11000	81	110	176000	.

AGAIN Wyoming Territory is heard from. Petroleum deposits have been known to exist in that territory for many years, though nothing of an illuminating character has been obtained. The Union Pacific railroad, however, has used the product of Wyoming for several years as a lubricator. The oil fields of the territory are in the western end, covering a tract about fifty miles wide and one hundred and fifty miles long. The original method of working was the digging of wells. Common windlasses and buckets were used to bring up the oil and then it was stored away, about three thousand barrels being now on hand at the southern extremity of the field. One well 175 feet deep produced fifteen barrels per day. Shafts have been sunk twenty feet deep and eight feet square, and in a few days they would be filled with oil. Professor Aughney says the true source of supply is the depth of 1,000 feet, and that time will prove an oil region here is nearly as large as that of Pennsylvania. The Beaver basin is situated twenty-five miles east of the field above mentioned. Here the oil is a pale yellow, whereas all the other petroleum in the territory is of a dark black hue. English capitalists are already figuring on the purchase of these fields.

THE PETROLEUM AGE.

DEVOTED TO THE

Interests of the Petroleum Trade.

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W. J. McCULLAGH,

Editor.

Let us have \$1.15 at the next jump. Crude should be cheap enough at that, while refined retails at \$8.40 a barrel.

One year ago, the AGE gave the possibilities of the Warren and Forest oil field, and it looks now just as indicated at that time, only a little more prolific in spots.

Operations during March were slightly increased. In the Allegany field especially there seems to be a strong disposition to push the drill in southern Bolivar. The territory, however, is of the lightest description.

It is said that the people of Olean are all bears on the oil market. This is caused by their having always in view the city of 35,000 barrel tanks, just outside the village limits. When one takes a view of these and then meanders along the Tuna valley from Limestone to Bradford and Custer City, he concludes that there must still be oil enough to go around.

The chapter in the front part of the AGE brings the reader up to that period in the history of the oil business where interest begun to be felt. The object of these letters is to give a general outline of developments in a connected and precise manner. They avoid detail, yet comprehend all that the public wish for. They are written by a man who has been in the business from the first as far up as it has gone.

Out in Kansas, and other western and southern states, they retail 110° fire test oil at 75 cts. a gallon. It is said the Standard Oil Company does the furnishing. Let us see. Forty-two gallons, at 75 cts. per gallon, equals \$31.50. From this deduct freight and ten per cent. for waste in manufacture and other expense, say \$5.00 in all, and there is left only \$26.50 as

profit on each barrel of the illuminator consumed out there. Why are there no speculators in this branch of the business?

The brokers of the Producers' Exchange presented one of their number with a gold-headed cane the other day for breaking a few ribs successfully and scalping an unfortunate "lay-down" who had sometime previous tried to sell more oil in that temple than the whole crowd or the Standard Oil Company could buy. It is bad policy to place wind against money, especially in the oil market. It is easy enough to sail while the wind is favorable, but rouse it and, as a rule, there is trouble. It was so in this case at all events.

What might almost be termed a panic occurred in the oil trade again on Monday, the 9th inst., when the market which had been sustained firmly for two days at about 92 cents broke, under oppressive news from Forest county, and flew like a bullet to 90 cents, thence to 89 cents, when it closed at 4 p. m. There was apparently a heavy weight hanging on the trade which the more shrewd discovered in time to make a fair strike at the expense of others who were always looking for the market to climb to \$1.00. The effects of the large stocks are felt every time there is an advance of 10 cents in prices. Somebody pays storage on it and, judging from recent developments, it is not the real owners thereof who do so.

Crude oil is just what the refiner and speculator are willing to pay for it, but the price bears no relation whatever to the intrinsic worth of the article. When capitalists conspire to elevate or depress the scale of rates, it moves at their bidding, and the variations thus caused are very much greater than they are in any other article that furnishes food for speculation. A fall or a rise in prices of ten cents a barrel is not an unusual occurrence during the business hours of a single day. Eastern speculators are becoming aware of this fact and of the special opportunities it offers for investment, and are devoting some attention to the matter. There is one peculiar feature of the whole business, however, that is not explained on natural grounds. This involves the question: Why does not the refined article in value fluctuate equally with the crude? It is rather peculiar, to say the least, that a single firm or corporation can hold in its grasp an entire branch of commerce and regulate it daily

like settling an old clock. This seems to be the case with the Standard Oil Company and the trade in refined oil. Another question suggests itself here: "Is it for the advancement of the business that such is the case?"

THE TORPEDO WAR.

The Roberts Torpedo Company, which has held a monopoly of the business for many years failed, in the Supreme court of the state of New York during the last week of March, to obtain an injunction against the oil producers of Allegany county and the Gallagher Bros., of Olean, whom the monopoly had charged with infringements. A matter was developed during the past month quite unexpected and also unfavorable to the torpedo company. This was evidence of a substantial character of the existence and use of oil well torpedoes long before the Roberts faction had dreamed of such an injunction. The gentleman who claims this distinction resides near Marietta, Ohio, and was discovered through the indomitable efforts of David Kirk, Esq., the prominent head of the McCalmont Oil Company. Whatever comes of this, one thing is positively certain, the Roberts company has succeeded during the past fifteen years in subduing all contestants and has acquired great wealth through what might properly be termed extortionate charges, as well also as through the lash of law. Hundreds, and perhaps thousands, of producers have been compelled to "walk up and settle" with the company for goods never furnished or services rendered, simply because it appeared to have the power of the courts on its side. That *power*, however, seems to be leaning a little on the other side and it is not improbable that it will pass entirely over. Monopolies are always odious, but the torpedo monopoly has been especially so, for its great tower of strength has lain in its ability to harrass and annoy its victims which it always pursued with the greatest exhibition of vengeance. The people demand relief and look with longing eyes to the courts of New York for it.

THE REAL ESTATE MARKET.

During the month of March there was more activity in the real estate branch of the oil trade than had been witnessed for the three months prior. The views of buyers and sellers came closer together than usual, and as a consequence trade became more numerous. There has been exhibited, on the part of large corporations, a

strong disposition to acquire more extensive possessions in the form of producing property and promising territory, even at advanced rates. This would indicate a belief that the immediate future was likely to prove rather barren of such "articles," and also that it promised improvement in values. Large corporations, however, are not supposed to know any more of what is to transpire in the "sweet bye-and-bye" than the smaller concerns of some individuals. Nevertheless, their action seems as a guide to a proper appreciation of the feeling which exists throughout the region. It is a common belief among all classes that a vast change is shortly to occur—that the market price for oil must ascend very much. Owners of old producing wells are sanguine of this and are more cheerful. Those who are fortunate enough to own good drillable territory are also encouraged and are sufficiently posted in the condition of affairs to hold for tolerably bright rates.

During the month George V. Foreman sold all his producing interests in the Northern and Allegany fields to the Union Oil Company for a sum supposed to equal \$1,000,000. Aside from this there were a dozen and a half smaller sales, aggregating \$275,000.

In Allegany the activity was not so great during the first half of the month, but increased somewhat toward the latter and into April.

In Warren and Forest there has been considerable stir, and there is even yet in this line. Small wells, however, are not sought after to that extent that owners desire. The "unknown" regions of Forest have many attractions for the speculator and much property changes hands from month to month. Territory that promises a large yield commands big prices, though by no means exorbitant. That which seems thoroughly tested is held at \$400 per acre, in fee, and proving properties sell at the valuation of about \$200 a barrel, net production.

The year 1883 promises to equal any similar period since the opening of the Oil Creek deposit for "wild-catting." Wells will be drilled in every corner of the American continent where petroleum can be sniffed, or where pebble rock exists. Let the procession move along, there will probably be holes enough found through which to consume all the oil that will be obtained.

Is the Forett county fiel destined to beat the oldest *guesser* at its future yield?

RUNS, DELIVERIES, STOCKS.

TABLE showing the February and March Pipe Line runs and shipments, with stocks, on March 31st, 1883—official. Each barrel 42 gallons:

RECEIPTS,		BARRELS.	BARRELS.
DISTRICT.	Pipe.	February.	March.
Bradford	United		
Tidiotte & Titusville	"		
Lower Gountry	"		
Monongahela	"		
Total		1,630,015 80	1,783,537 51
Bradford	Tidewater	184,390 74	200,254 32
Titusville	Octave Oil Co.	2,863 28	3,713 00
Oil City	Charley Run	370 54	570 54
Shaffer	Shaffer Run	583 00	383 00
Franklin	Franklin Pipe	7,607 78	8,067 96
Total all Lines		1,825,831 14	1,996,526 33
Average per day, March, 1883		64,404 01	
Average per day, February, 1883		63,208 24	
Average per day, January, 1883		65,124 99	
Average per day, December, 1882		72,413 54	
Average per day, November		73,098 09	
Average per day, October		85,227 24	
Average per day, September		96,079 68	
Average per day, August		111,243 38	
Average per day, July		95,192 11	
Average per day, June		95,522 95	
Average per day, May		85,563 08	
Average per day, April		80,093 79	
Average per day, March		83,724 96	
Average per day, February		83,547 40	
Average per day, January		71,855 43	
Deliveries.			
PIPE.		February.	March.
All Points	United	1,043,912 67	1,378,966 55
Titusville	Octave Pet. Co.	1,216 19	3,050 00
Franklin	Franklin Pipe	5,143 61	4,301 50
Shaffer	Shaffer Run	95 86	95 86
Oil City	Charley Run		
Bradford	Tidewater	191,508 75	248,430 52
Total deliveries		1,241,877 08	1,634,844 43
Amn't of runs in excess of Shipments		583,953 78	361,671 90
Net Stocks,		Feb. 28.	Mar. 31.
PIPE.		Barrels.	Barrels.
Oil City	Charley Run	2,100 00	3,864 00
Bradford	Tidewater	2,470,350 46	2,420,203 38
All Districts	United	32,986,430 67	33,112,011 44
Shaffer	Shaffer Run	27,388 23	27,388 23
Titusville	Octave Oil Co.	5,760 79	5,708 00
Franklin	Franklin Pipe	21,127 68	25,505 79
Total March, 1883			35,594,680 84
Total February, 1883			35,513,157 83
Total January, 1883			34,952,662 23
Total December, 1882			34,335,180 58
Total November			33,604,841 36
Total October			32,210,533 76
Total September			31,253,074 61
Total July			30,157,021 20
Total June			29,540,517 47
Total May			28,833,715 51
Total April			27,969,884 48
Total March			27,252,806 93
Total February			26,414,274 36
Total January			25,788,071 79
Increase, March, 1883			61,523 01
Increase, February, 1883			600,495 60
Increase, January, 1883			617,481 65
Increase December, 1882			730,239 22
Increase, November			838,195 69
Increase October			556,111 91
Increase September			957,485 53
Increase, August			1,096,026 41
Increase, July			616,503 73
Increase, June			706,801 96
Increase, May			863,631 03
Increase, April			717,077 55
Increase, March			838,532 57
Average increase per day, Mar., 1883			1,984 55
Average increase per day, Feb., 1883			21,446 27
Average increase per day, January, 1883			19,918 76
Average increase per day, Dec., 1882			23,556 10
Average increase per day, November			18,537 06
Average increase per day, October			27,823 88
Average increase per day, September			27,874 64
Average increase per day, August			35,355 69
Average increase per day, July			19,887 21
Average increase per day, June			23,902 58
Average increase per day, May			27,859 06
Average increase per day, April			23,902 58
Average increase per day, March			27,049 44
Average increase per day, February			22,364 00
Average increase per day, January			12,174 73

Back numbers of the AGE can be obtained by those desiring them on application at this office.

MARCH OFFICIAL QUOTATIONS FOR REFINED.

THIS table gives the daily quotations for refined oil at the principal foreign as well as domestic ports:

	N. Y.	Philadelphia.	Baltim're.	London.	Bremen.	Antwerp.
	cts.	cts.	cts.	pence.	m'rk.	fr'cs.
1	8	7 ⁷ / ₈	7 ⁷ / ₈	6 ¹ / ₂	7.35	18 ³ / ₄
2	8	7 ⁷ / ₈	7 ⁷ / ₈	6 ¹ / ₂	7.35	18 ³ / ₄
3	8	7 ⁷ / ₈	7 ⁷ / ₈	6 ¹ / ₂	7.35	18 ³ / ₄
5	7 ⁷ / ₈	7 ³ / ₄	7 ³ / ₄	6 ³ / ₄	7.25	18 ¹ / ₄
6	7 ⁷ / ₈	7 ³ / ₄	7 ³ / ₄	6 ³ / ₄	7.25	18 ¹ / ₄
7	7 ³ / ₄	7 ³ / ₄	7 ³ / ₄	6 ³ / ₄	7.25	18 ¹ / ₄
8	7 ³ / ₄	7 ³ / ₄	7 ³ / ₄	6 ³ / ₄	7.15	18 ¹ / ₄
9	7 ³ / ₄	7 ³ / ₄	7 ³ / ₄	6 ³ / ₄	7.15	18 ¹ / ₄
10	7 ³ / ₄	7 ³ / ₄	7 ³ / ₄	6 ³ / ₄	7.35	18 ¹ / ₂
12	8 ¹ / ₄	8 ¹ / ₄	8 ¹ / ₄	6 ³ / ₄	7.35	19 ¹ / ₄
13	8 ¹ / ₄	8 ¹ / ₄	8 ¹ / ₄	6 ³ / ₄	7.70	19 ¹ / ₄
14	8 ¹ / ₄	8 ¹ / ₄	8 ¹ / ₄	6 ³ / ₄	7.70	19 ¹ / ₄
15	8 ¹ / ₄	8 ¹ / ₄	8 ¹ / ₄	6 ¹ / ₂	7.65	19 ¹ / ₄
16	8 ¹ / ₄	8 ¹ / ₄	8 ¹ / ₄	6 ³ / ₄	7.75	19 ¹ / ₄
17	8 ¹ / ₄	8 ¹ / ₄	8 ¹ / ₄	6 ³ / ₄	7.75	19 ¹ / ₄
19	8 ³ / ₈	8 ¹ / ₄	8 ¹ / ₄	6 ³ / ₄	7.75	19 ¹ / ₄
20	8 ¹ / ₂	8 ³ / ₈	8 ³ / ₈	6 ³ / ₄	7.95	19 ³ / ₄
21	8 ¹ / ₂	8 ³ / ₈	8 ³ / ₈	6 ³ / ₄	7.95	19 ³ / ₄
22	8 ¹ / ₂	8 ³ / ₈	8 ³ / ₈	6 ³ / ₄	7.95	19 ³ / ₄
23	8 ¹ / ₂	8 ³ / ₈	8 ³ / ₈	6 ³ / ₄	7.75	19 ³ / ₄
24	8 ¹ / ₂	8 ³ / ₈	3 ⁷ / ₈	6 ³ / ₄	7.90	19 ¹ / ₂
26	8 ¹ / ₂	8 ³ / ₈	8 ³ / ₈	6 ³ / ₄	7.90	19 ¹ / ₂
27	8 ¹ / ₂	8 ³ / ₈	8 ³ / ₈	6 ³ / ₄	7.70	19 ¹ / ₂
28	8 ³ / ₈	8 ¹ / ₄	8 ¹ / ₄	6 ³ / ₄	7.70	19 ¹ / ₂
29	8 ³ / ₈	8 ¹ / ₄	8 ¹ / ₄	6 ³ / ₄	7.70	19 ¹ / ₂
30	8 ³ / ₈	8 ¹ / ₄	8 ¹ / ₄	6 ³ / ₄	7.85	19 ¹ / ₂
31	8 ³ / ₈	8 ¹ / ₄	8 ¹ / ₄	6 ³ / ₄	7.70	19 ¹ / ₂

MARCH OFFICIAL QUOTATIONS FOR CRUDE.

THE following table shows opening, highest, lowest, and closing quotations at the Bradford Oil Exchange each day; also average for the month:

	Opening.	Highest.	Lowest.	Closing.	Avg.
1	99	99	97 ⁷ / ₈	98	96 ¹ / ₂
2	97 ⁷ / ₈	98 ¹ / ₂	97	97	97 ³ / ₄
3	96 ⁷ / ₈	97 ³ / ₄	94 ³ / ₄	96 ¹ / ₄	96
5	96 ¹ / ₂	96 ³ / ₄	95 ³ / ₈	95 ³ / ₄	96 ¹ / ₈
6	95 ³ / ₄	95 ³ / ₄	93	93 ³ / ₈	94 ³ / ₈
7	93	93 ¹ / ₂	91 ¹ / ₂	91 ³ / ₈	82 ³ / ₈
8	91 ⁷ / ₈	91 ⁷ / ₈	87 ³ / ₄	87 ³ / ₄	89 ³ / ₄
9	88	91 ³ / ₈	86	89 ¹ / ₈	98 ¹ / ₂
10	89 ¹ / ₈	93 ³ / ₈	88 ¹ / ₄	93 ³ / ₈	90 ³ / ₄
12	95	101 ¹ / ₄	95	100 ³ / ₈	98 ³ / ₈
13	102	102	98 ¹ / ₈	99 ³ / ₈	100
14	99 ³ / ₄	100 ¹ / ₄	97 ⁷ / ₈	98 ³ / ₈	99
15	98	99 ³ / ₈	98	99	98 ³ / ₄
16	99 ¹ / ₄	102 ¹ / ₂	97 ⁷ / ₈	102	100
17	102 ⁷ / ₈	102 ³ / ₄	101	101 ³ / ₈	101 ⁷ / ₈
19	102 ¹ / ₈	105 ⁵ / ₈	102 ¹ / ₂	105 ¹ / ₈	104
20	107	110	106 ¹ / ₈	103 ³ / ₈	108
21	106 ¹ / ₄	107 ¹ / ₂	103	103 ³ / ₈	105 ¹ / ₄
22	104 ¹ / ₂	104 ³ / ₄	103 ¹ / ₈	103 ³ / ₈	104
23	Holiday				
24	99 ¹ / ₂	99 ¹ / ₂	96 ⁷ / ₈	97 ¹ / ₂	98 ¹ / ₄
26	98	98	94	94 ³ / ₄	96
27	94 ³ / ₈	95 ¹ / ₂	93 ³ / ₈	95	94 ³ / ₄
28	95	95 ⁷ / ₈	94 ³ / ₈	95 ³ / ₈	96 ³ / ₈
29	95	100 ³ / ₈	94 ³ / ₈	93 ³ / ₈	97 ³ / ₈
30	95 ¹ / ₂	98	94 ¹ / ₂	94 ³ / ₈	96 ¹ / ₄
31	94 ¹ / ₄	96 ¹ / ₄	93 ⁷ / ₈	95 ³ / ₈	95 ¹ / ₄
General Average,					97 ¹ / ₂

AN oil well is to be sunk at Puyallup, Washington Territory, where traces of petroleum have been discovered. Work has already commenced in the venture. Prospects in such cases are always good until the ground has been punched to a sufficient depth, when there is a general feeling of disgust on the part of the prospectors.

WELLS COMPLETED.

TOTAL NUMBER OF WELLS COMPLETED EACH MONTH IN THE YEARS NAMED.

A. D.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1870	131	131	114	135	164	182	161	156	135	144	112	79	1,644
1871	98	68	70	81	95	150	139	116	125	186	161	181	1,470
1872	48	118	98	122	130	98	131	117	96	101	41	101	1,201
1873	100	105	105	110	106	180	112	116	116	111	108	95	1,364
1874	108	111	108	110	112	113	124	102	108	117	112	116	1,341
1875	184	186	194	180	169	194	208	206	208	215	213	228	2,385
1876	235	236	248	207	200	258	243	274	223	270	278	271	2,943
1877	275	249	296	264	336	598	314	254	332	460	398	391	4,167
1878	279	238	202	411	468	278	210	180	176	232	241	160	3,075
1879	144	136	221	263	395	336	335	280	269	229	225	268	3,101
1880	311	238	358	494	435	315	339	359	359	360	334	309	4,211
1881	232	218	201	310	412	371	348	335	314	302	347	405	3,795
1882	357	359	389	449	457	328	188	248	169	116	150	122	3,332
1883	125	131											

Total for 13 years ended December 31st, 1882 34,029

MARCH SALES AND RUNS.

FOLLOWING is a summary of the sales of oil at the Bradford, Oil City, Pittsburg and New York Oil Exchanges during the month of March. Nothing less than 1,000 barrel certificates ever sold; each barrel represents forty-two gallons:

	Bradford.	Pittsburgh.	Oil City.	New York.
January, . . .	23,885,000	11,441,000	27,163,000	
February, . . .	19,412,000	9,153,000	22,207,000	
March, . . .	27,467,000	13,208,000	29,448,000	
April, . . .	22,245,000	8,325,000	19,171,000	15,000,000
May, . . .	39,777,000	21,814,000	38,402,000	35,000,000
June, . . .	29,969,000	20,417,000	38,127,000	21,000,000
July, . . .	48,736,000	22,040,000	31,536,000	22,400,000
August, . . .	34,494,000	16,140,000	50,000,000	20,000,000
September, . .	113,402,000	67,220,000	156,450,000	48,500,000
October, . . .	59,797,000	36,586,000	69,737,000	30,200,000
Nov.	105,500,000	76,000,000	164,000,000	91,000,100
Dec.	70,000,000	35,000,000	103,000,000	48,000,000
Jan. 1883 . . .	41,867,000	39,626,000	56,001,110	36,000,000
February . . .	34,043,000	20,391,000	44,000,000	35,000,000
March	63,507,000	51,470,000	107,273,000	58,254,000

Average daily runs and shipments each month of year to March 31st:

	Total Daily Runs.	Bradford Daily Runs.	Total Daily Shipm'ts.	Bradford Shipm'ts.	Char-ters.
January, . . .	70,401	62,229	55,798	40,864	33,877
February, . . .	81,853	72,825	63,062	47,183	43,075
March, . . .	81,186	65,758	53,489	38,963	41,080
April, . . .	80,158	67,392	54,413	35,662	35,453
May, . . .	83,397	75,472	56,478	43,329	47,220
June, . . .	89,103	78,701	65,266	47,980	54,829
July, . . .	87,948	65,445	61,779	41,013	34,213
August, . . .	111,243	70,646	66,046	42,500	. . .
September, . .	96,079	64,608	66,220	42,000	40,000
October, . . .	85,227	. . .	67,132	41,000	. . .
Nov.	72,852	58,345	46,821	36,100	31,375
Dec.	65,624	49,789	36,140	18,603	42,545
Jan. 1883 . . .	64,665	50,951	43,585	30,321	23,459
February . . .	64,909	51,823	44,083	35,805	25,647
March	64,228	51,005	52,572	39,509	32,091

A dealer in the Producers' Petroleum Exchange went short 24,000 barrels and, though the market did not vary one cent, he was unable to make his deliveries. Such a dealer should be shunned as a viper with Standard fangs.

It is altogether likely that there will be oil enough to go around during the coming summer. Every person desiring a quantity will in all probability be able to obtain it at some price.

The United Pipe Lines' headquarters is to be removed to Pittsburgh during the coming summer. So far as the interests of speculators in the oil country are concerned, the event will have but little effect either way.

The changes that are annually wrought upon the surface of the country as well as society throughout the oil regions are remarkable. The barren mountains as well as dense swamps where the feet of man had seldom if ever trod, are transformed into "vineyards" where life and the greatest of activity prevail. As a rule, the wild-catter prefers the most deserted and, as it were, distorted locality he can find for a fresh test. If he succeeds in securing the prize he is after, it makes no difference what the expense may be the multitude who always follow up the latest development will draw near as possible and at once set to work to found a new "city." It may actually be found necessary to plank a highway in order to reach such localities in the wet season, but that becomes a very small obstacle. It will be laid. It is also a significant fact that in no case is a city of this character ever deserted entirely. The oil regions of Pennsylvania and New York contains a greater number of such towns to the square mile than any other region of the western continent, and though many of them assume a very dilapidated and forsaken attitude, yet necessity seems to demand that somebody must remain to maintain unbroken the chain of historical record.

NIMO'S OFFICIAL REPORT OF THE EXPORTS OF PETROLEUM—FEBRUARY, 1883.

CUSTOMS DISTRICTS.	CRUDE.		NAPHTHAS.		ILLUMINATING.		LUBRICATING.		RESIDUUM.		TOTAL.	
	GALLONS.		GALLONS.		GALLONS.		GALLONS.		GALLONS.		GALLONS.	
Boston . . . . .	. . . . .		. . . . .		409,768		21,637		. . . . .		431,405	
New York	3,077,087		806,013		18,413,788		905,335		726,558		23,928,781	
Philadelphia	430,647		. . . . .		2,754,929		. . . . .		. . . . .		3,185,576	
Baltimore . . . . .	. . . . .		. . . . .		1,462,784		. . . . .		115,500		1,578,284	
San Francisco . . . . .	. . . . .		440		11,730		292		. . . . .		12,462	
All other districts . . . . .	. . . . .		1,955		71,322		6		. . . . .		73,283	
Total for February, 1883	3,507,734		808,408		23,124,321		927,270		842,058		29,209,791	
Total for February, 1882	1,960,800		702,975		25,449,771		428,805		210,840		28,753,191	
Total for eight months ended February 28, 1883	37,288,174		12,865,487		265,921,369		6,320,997		3,621,030		326,017,057	
Total for eight months ended February 28, 1882	29,424,839		15,526,390		322,955,674		3,390,537		2,486,442		373,783,882	
Total Value	\$34,453,551											

THE FREE PIPE LAW.

The fact that the Pennsylvania legislature recently passed an act in favor of free piping of oil in the State is that that body has become in any manner more pure and upright than it was a few years ago when Tom Scott led it by the nasal organ in any direction that he desired. But it proves something most certainly, and that we should describe as indifference on the part of the element of the oil trade which gave the measure so much opposition on former occasions. It is perhaps a matter void of doubt that, had the opponents of the enactment entertained the slightest fear of consequences, the bill which recently became a law would at this hour be sleeping among other dead papers in the archives of the state. It is true a man had better begin

late in life to perform the duties he owes to himself and the world generally, than to go down to his ending bevooin of a credit mark. Just so with the great (?) body of legislators who have been depriving the people of this state of their rights for the past eight years. It is to be congratulated that there were no temptations in the form of "cash bids" thrown in its way, else it might have fallen from the little grace it seems now to possess. The present law is good enough, although an ignoramus from the lower part of the state tried to "cooper" it in its passage, but it has come too late to be of much benefit either to producers of petroleum or to the state itself. Had either of the numerous bills that in former years were introduced by the friends of justice and equal rights been made a law at the proper

time, Philadelphia would now be reaping some of the benefits of the oil business that New York and Cleveland are enjoying. To both of these latter, pipe lines of large capacity have been constructed in the interest of one corporation, which cares as much for Pennsylvania's welfare as a cat cares for candy. However, they may accrue some benefits yet, and whatever of these that may arise may be placed to the credit of Emery and Lee, two of the most substantial friends that the oil region public possesses within those dingy walls.

MR. H. LANDSWORTH, the gentleman who fired the first shot at Cherry Grove last spring and missed it, is aiming at some other bird in lower Forest.

FOREST COUNTY.

CONDITION OF OPERATIONS.

BALLTOWN, April 18th, 1883.

The deserts of Forest county are beginning to blossom as other spots of oildom. These wilds have furnished holes for the delicate "wood-chuck" for ages and supplied the "wildcat" with roaming areas to his heart's content. Not long since, the bear, the fox, the panther and other "reptiles" had their own way over an apparent waste covering many thousands of acres. Now into this deserted waste come the ambitious and adventurous oil operator, who has turned things topsy-turvy and raised Cain generally. Instead of the desolate note of the owl and the wretched concert of the wildcat we hear the gentle voice of the festive driller and the pleasant squal of the ungreaed crown pulley. All these indicate a most healthy state of affairs for the county, which is one of the smallest the state affords and perhaps one of the weakest financially, up to the hour of developing the greasian mines of wealth that lie beneath that portion of the county immediately surrounding Balltown.

The result of the Murphy and the Welch wells, on Warrants 5,226 and 5,133, which came in fair producers last week, has begun to stimulate operations on all sides. These wells were supposed, while the drill was in progress, to be about far enough westward to overstep the bounds of the paying territory. But the Welch has kept up a daily yield for several days of about one hundred and thirty barrels, indicating the existence in the latitude of considerable oil. The question of a connection between the Cooper tract pool and that of Porcupine Run and Balltown seems to be decided in the negative. They are undoubtedly two distinct and separate pools, having characteristics similar to Cherry Grove and other spots that have been discovered in Warren county. The wells yield quite largely at the beginning, but have a faculty for dropping off altogether too suddenly for the use of the owners. The 41 wells of the Cooper tract yesterday, the 17th, did about 4,150 barrels and the six of the Porcupine and Balltown country about 900. This would make a total for both sections of about 5,000 barrels, which will doubtless be increased at some time in the near future, though it will vibrate considerably above and below this point for a short time. There is room, however, for several hundred wells, many of which must result in large producers, but if the daily yield

even reaches a point above 8,000 barrels it will require speedy drilling to sustain it there. The drilling, moreover, will be done, and before the limits of the two spots are thoroughly defined they must play an important part in directing the course of the oil market.

The Grace wildcat, southwest of the Cooper tract and located on Warrant 3,133, has been drilled below the level of all oil bearing rocks of the country and is a total failure.

North of the Porcupine wells there are two new wells in progress that have some interest attached. They point in the direction of the defunct Cherry Grove field and will doubtless either prove very small or dry.

THE PETROLEUM WELLS OF NEW ZEALAND.

[*Colourman's Journal.*]

CONSUL GRIFFIN, of Auckland, gives the following information about the petroleum springs at Gisborne:

There appear to be three distinct kinds of petroleum in New Zealand, and while at Gisborne I was fortunate to obtain samples of each kind.

The first sample is from the Sugar Loves, in the province of Taranaki. This oil has a very high specific gravity, 960 to 964 at 64° Fahr., water at 1. It has too much carbon ever to become profitable, although it is claimed by analytical chemists to be capable of producing a fine lubricating oil, and it is said to resemble the oil found in Santa Barbara county, California.

The second variety is from Poverty Bay, on the east coast of the province of Auckland. This is said to be a true parafine oil, resembling the Canadian oil and, by three successive distillations and treatment with acids and alkalies, about 65 per cent. of good illuminating oil is obtained, with a specific gravity of 843.

The third kind is found at Mauntahi Waipu, East Cape. This produces a pale brown oil, nearly transparent, specific gravity of 829 at 60° Fahr., and burns well in a kerosene lamp. It is described as being of a very superior class. It contains only traces of parafine and produces 84 per cent. of illuminating oil fit for use in kerosene lamps by means of a single distillation.

Several companies have been organized for working these springs and boring for oil, but as yet they do not appear to have met with any great success.

SHIPMENTS.

Shipments of Crude and Refined, in Barrels of 42 Gallons each, reduced to Crude Equivalent out of the Producing Regions in the years named.

YEAR.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals.
1859	900	1,200	2,500	4,640	11,000	21,000	58,500	64,300	79,000	78,400	500	1,200	1,700
1860	54,800	49,620	68,410	95,300	184,000	189,000	200,400	210,000	263,000	184,000	63,400	38,400	423,240
1861	98,212	93,101	103,761	201,430	250,320	385,211	375,440	376,311	401,210	406,500	76,321	75,282	1,650,133
1862	171,132	104,928	148,381	288,994	456,211	428,282	213,413	281,400	398,211	264,441	213,611	190,403	3,141,521
1863	148,324	101,431	96,480	132,486	125,218	221,386	110,490	101,218	228,430	220,386	201,441	200,211	3,242,951
1864	121,386	94,803	103,201	122,222	140,301	338,403	184,231	115,821	231,402	228,321	215,262	154,765	1,842,001
1865	132,200	121,320	180,206	260,231	280,320	390,260	200,410	290,210	390,431	318,616	210,016	236,701	2,100,132
1866	123,460	125,321	165,230	250,830	300,311	300,210	210,410	260,310	384,206	300,102	280,013	132,807	2,883,210
1867	150,220	144,201	200,410	280,430	310,408	400,046	390,402	320,210	480,306	260,240	280,260	265,377	3,482,510
1868	200,026	100,320	240,210	260,406	340,318	400,601	310,707	250,214	450,200	480,860	280,210	249,896	3,623,521
1869	360,933	312,910	354,400	390,003	407,908	418,516	410,260	516,679	542,217	557,624	519,780	444,254	5,235,931
1870	437,691	347,718	383,890	389,147	587,375	501,754	541,137	528,134	551,075	505,071	480,977	410,822	5,664,791
1871	476,966	407,066	276,220	428,512	510,417	529,228	591,238	621,954	541,607	607,468	477,940	430,786	5,899,942
1872	573,124	527,440	668,374	708,191	768,176	696,414	814,449	864,768	952,955	1,010,852	959,589	955,443	9,499,775
1873	843,663	501,220	518,246	803,409	899,027	815,413	940,281	793,865	1,014,570	543,341	546,117	602,348	8,821,500
1874	435,095	327,776	693,918	729,581	681,679	745,986	904,537	882,089	1,109,392	871,917	671,066	871,902	8,924,938
1875	677,289	519,193	623,762	903,526	1,234,324	1,391,124	1,096,951	1,203,402	1,154,549	524,190	871,496	1,190,983	10,164,443
1876	743,461	484,904	913,919	846,636	960,894	1,135,119	1,330,454	1,425,943	1,503,797	1,268,971	1,205,634	600,019	12,832,578
1877	775,791	774,234	741,512	846,636	960,894	1,135,119	1,330,454	1,655,651	1,434,225	1,747,390	1,281,410	992,688	13,476,000
1878	663,998	702,729	973,879	1,136,188	1,331,469	1,399,314	1,625,035	1,808,238	1,627,120	1,662,269	1,453,645	1,542,585	15,896,469
1879	1,650,409	1,395,151	1,613,371	842,268	1,095,259	975,083	1,231,611	1,304,129	1,252,635	1,665,933	1,226,030	1,335,613	15,587,447
1880	1,061,617	915,028	1,276,740	1,348,398	1,563,436	1,729,697	1,925,532	2,214,877	2,031,950	2,080,467	2,069,641	2,014,655	20,232,038
1881	1,817,973	1,829,779	1,729,237	1,751,294	1,843,455	2,261,172	2,239,591	2,078,903	2,003,184	2,092,677	1,406,880	1,140,462	22,192,024
1882													
1883	1,369,010	1,643,447											

RUSSIAN OIL.

At the Moscow exhibition recently held there was a good showing of Russian mineral oils, especially of crude naphtha and its sub products. Ragsine & Co. had some diagrams to show the development of the industry, and the following little table has been drawn up from them :

RAW NAPHTHA.				PETROLEUM.			
Production in Pounds.	Price per Pound in Roubles.	Production in Pounds	Price per Pound in Roubles.	Production in Pounds	Price per Pound in Roubles.	Production in Pounds	Price per Pound in Roubles.
1860	500,000	0.40	10,000	4.90	1860	500,000	4.90
1886	3,500,000	1.01	7,000,000	0.40	1886	3,500,000	0.40

There were only 45 wells at Baku in 1860 and in 1880 there were 196. The Russian oils,

though deficient in illuminating power, contain other valuable matters. A rouble is estimated at about 73 cents American coin. In 1880, therefore, the price of a barrel of oil of forty-two gallons was about \$1.60. Since 1880 the price has gradually declined, and at the present time a barrel of oil of the capacity above stated brings less than fifty cents.

HARDWARE PRICES.

The following list of prices, as ascertained at the oil well supply house of L. Emery, Jr. &

Co., Bradford, shows some depreciation from the figures of a few months ago :

ARTICLE.	PRICE.
Casing, 5/8 per foot	\$ 45
Tubing, 2 in. per foot	15
Pipe, all kinds, 70 per cent. off.	
Drive Pipe, per foot	1 70
Sucker Rods, per foot	85 1/2
Rig Irons, full outfit	71 00

It is estimated that this year's out-put of the Wood River and Sawtooth mines will be about \$3,000,000, or double the yield of the entire territory three years ago.

THE PETROLEUM AGE.

SUPPLEMENT FOR APRIL, 1883.

THE SITUATION.

AS indicated last month, shipments have increased considerably and would now exceed the daily runs, but for the determination of the United Lines to hold the patronage of the producers, especially in the Allegany field, against the encroachments of the Tidewater pipe which is now stretching itself over portions of that interesting field. As a consequence of this, the former is making every effort possible to receive all the oil and thereby defeat the aims of the latter, not only in the Allegany, but in every other part of the producing field. The daily runs are therefore kept somewhat above the production and will continue so until all well stocks are completely absorbed. This must very soon have a salutary effect upon values unless the new producing sections of Warren and Forest county become considerably enlarged, which is not an assured fact by any means. During the month, however, some additions were made to the producing area. The Murphy well, on Porcupine run which caused some excitement about the first of March was decided a failure, and therefore ceased to influence the trade. But a second venture located a short distance west from No. 1 was completed and proved a test of some value to territory previously thought by many to be worthless. This was a signal for an onslaught of the "Shorts" and another decline of several cents a barrel resulted. We give this state of things to show the feebleness of every effort made to bull the market, so long as the character and extent of the Forest county field remained as problems unsolved. Thus far however, no very important results have accrued to those who have lent their energies, as well as finances in developing the field. Some fair wells have been obtained it is true, and some territory, that had been lightly thought of has been proven quite valuable, but so far as opening a field of extensive proportions, either as to area or productiveness is concerned the effort must be put down as next thing to a failure. Constant readers of the AGE will observe that attention has been called to the possibility of the development of numerous rich spots throughout many portions of southern Warren county and northern Forest.

There is a vast extent of country, which lies within the "Oil Zone" and at the present, where Forest counties best wells are obtained this belt is the widest. There is moreover a diversity of rock. The section separates two great basins, that of the northern field and the lower or Clarion and Butler. The regular formation of neither of these is found in Forest. It contains formations and strata entirely its own, and yet constitutes the link which connects the great chain of pools that ex-

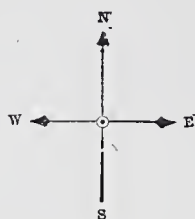
tends from Allegany Co. N. Y. to Beaver county Pa. It was therefore not to be considered a matter of astonishment that these pools were found. But the question arises, are they dangerous? In one sense they are, for they serve the purpose of the bear element in preventing innocent speculators from investing in a very cheap article. But the problem of the hour is, how far will the new Forest pools go in supplying the deficiency caused by the decline of the old districts. A fair idea may be gained by observing the extent and surroundings of the pools indicated by the map on the other side. Grant these spots all that any sane person should ask for them, and yet they appear quite insignificant indeed. To-day April 20 the entire region from Sheffield south does not produce 4000 barrels a day. A large portion of the most prolific territory has already been drilled, and they also exhibit symptoms very similar to Cherry grove, whose light seemed to go out in a single night. The total yield of the whole region may never exceed 8,000 or 10,000 barrels per day, in which case it could do but little damage to the trade. Then when these few pools shall have performed their functions, whither shall the trade look for relief? Notwithstanding the advent of several large gushers in Forest county, the yield of the country shows a still further depreciation. By fields the total is as follows:

DISTRICT.	PRODUCTION.
Bradford	33,005
Allegany	10,520
Warren & Forest	7,000
Lower Country	7,500
	58,025

This calculation is made on a basis of runs and well stocks on the 15th of the month. It does not show as large a decline as was expected but, the discrepancy lies in the large runs, which have reduced the stocks in some parts of the northern field below the estimate, and will effect the production calculation for April very much. From all that is to be gathered therefore, there does not appear to be much danger to the trade from any development visible. A very fluctuating market may be looked for, as the trade is passing that stage where the heavy stocks influence it for the time being, on the one side and failing supply affords strength and sustains it on the other.

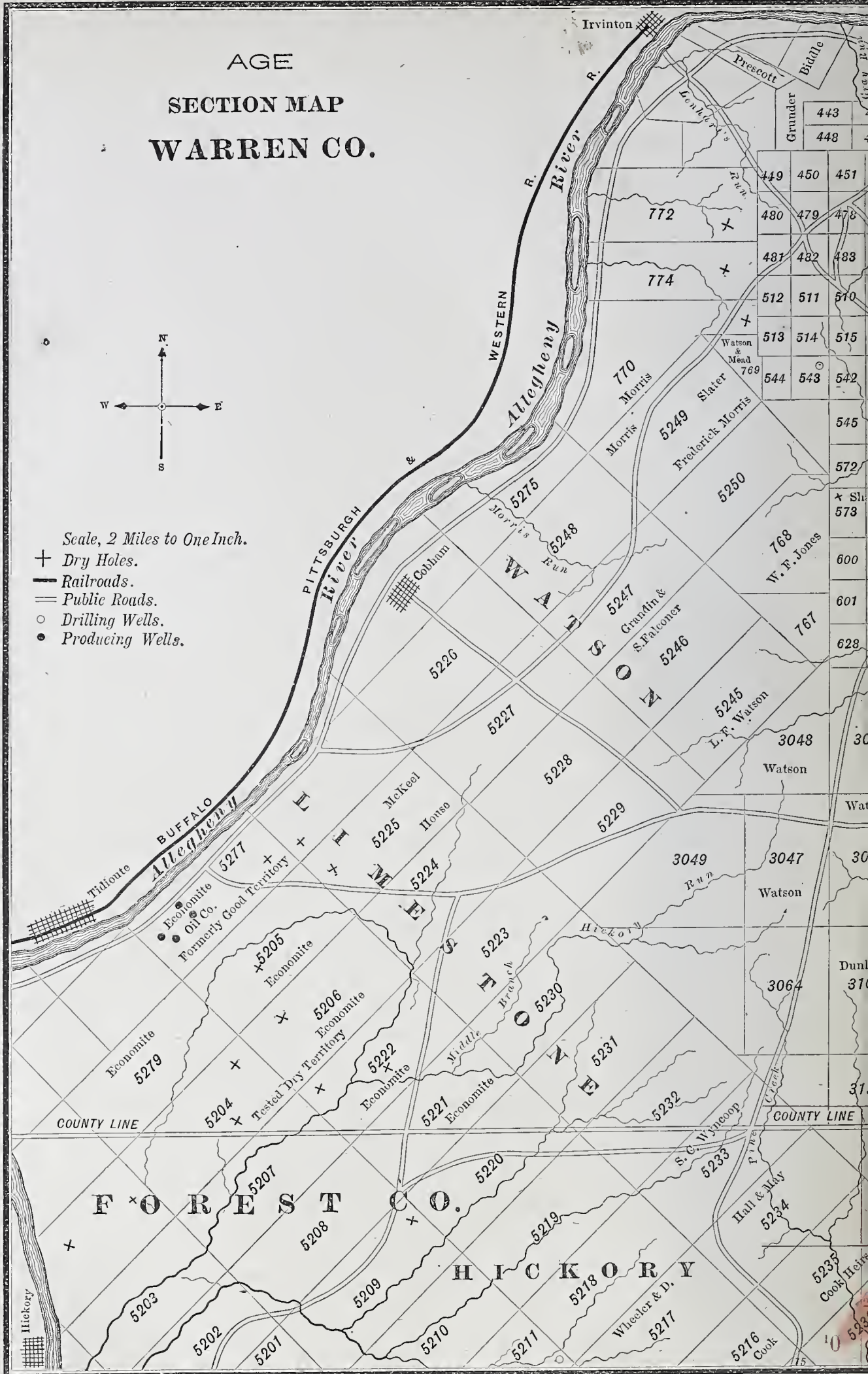
The AGE has just received intelligence from Cardinus Cuba, of the striking of a well that produced 190 bbls the first day. Its life was short however, as it only produced 100 the 2nd, 35 the 3rd and 8 bbls the fourth day. It is owned by a Spanish Co. and was drilled by a man named M'Williams who was formerly in the employ of the Oil Well Supply Co. in Bradford. The oil yields 35 percent only of refined.

AGE SECTION MAP WARREN CO.



Scale, 2 Miles to One Inch.

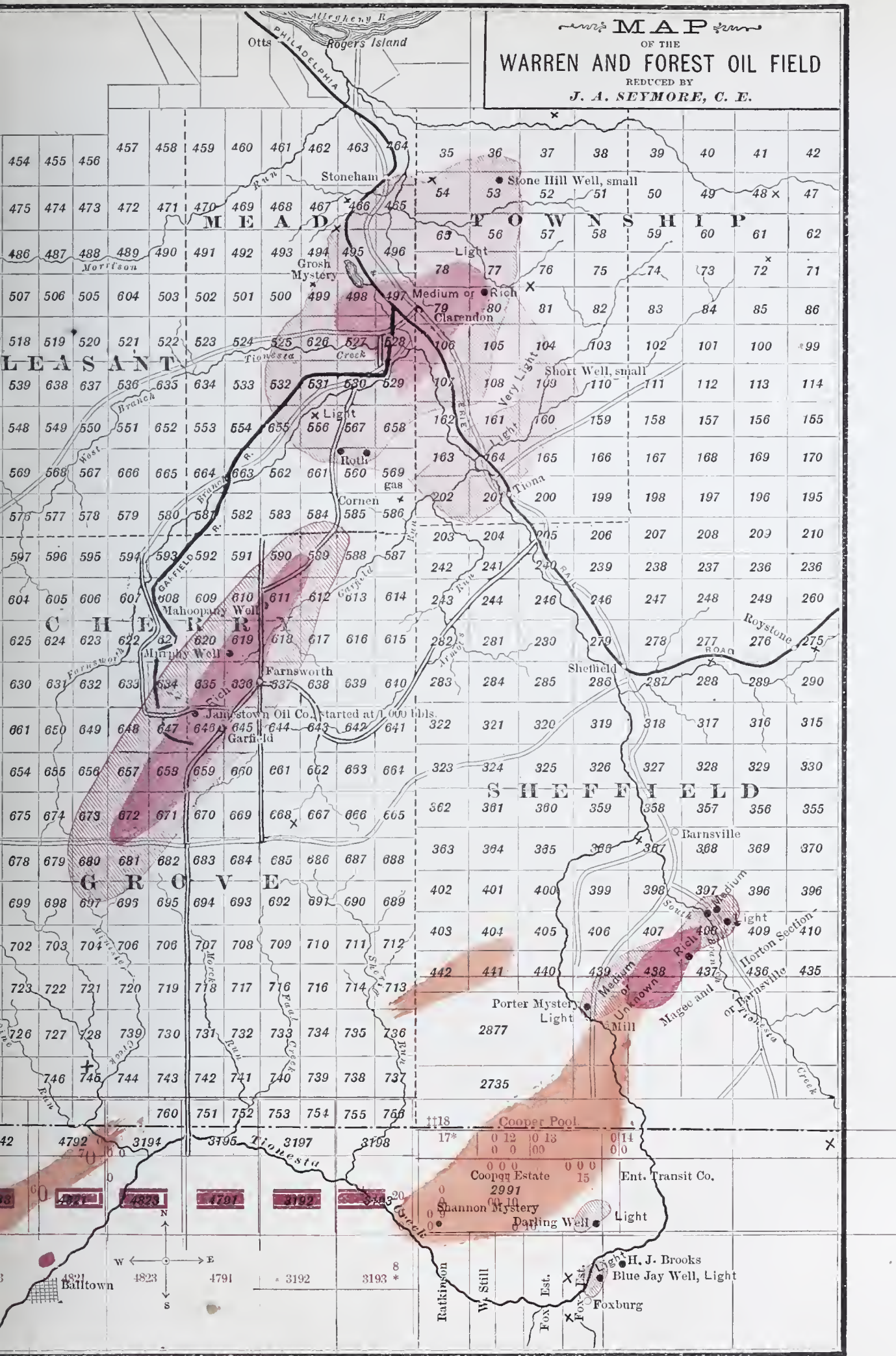
- + Dry Holes.
- Railroads.
- Public Roads.
- Drilling Wells.
- Producing Wells.



MATTHEWS, NORTHROP & CO., ENGRS. & PRS., BUFFALO, N. Y.

KEY TO COOP

No. 1, Grandin No. 7, at sand . . 2 and 3, Grandin Producing wells started at 500 barrels . . 4, W. No. 1, on the east 6 barrels, and No. 2 next west, 100 barrels . . 8, Grace, dry hole . . 9, Melvin, Walker . . 12, Reno Oil Co. well, started at 1,500 barrels . . 13, Patterson wells, started at 1,500 barrels, (now McCa barrels . . 17, Sherman, dry hole, no sand . . 18, Forest City . . 19, Grandin dry hole, at Balltown pool



S. NORTHROP & CO., ENGRS., BUFFALO, N. Y.

WATSON POOLS.

Wells . . 5, Galey-Murphy, 100 barrels . . 6, Murphy drilling . . 7, Group of Porcupine Run wells, Murphy
wells, Cooper tract . . 10, Anchor Oil Co. No. 1, started 1,500 barrels . . 11, Anchor and McCalmont wells . .
12, Anchor and McCalmont wells, medium producers . . 13, Anchor and McCalmont wells, medium producers . . 14, Fertig well, small . . 15, Clark & Foster wells, medium producers . . 16, Fertig & Henne, 25
wells, No. 1, 5 barrels, and No. 2 north, 100 barrels.

W. R. WEAVER.

L. EMERY, JR.

ESTABLISHED, 1876.

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THE PETROLEUM AGE.

VOL. II.

BRADFORD, PA., APRIL, 1883.

No. 5

PETROLEUM.

CHAPTER XV.

*The Press of the Region—"The First Daily"—
The Herald—The Courier—The Derrick—
Success and Failure of Various Ventures
at Oil City, Titusville, Parker City, Frank-
lin and Other Towns—The Oil Horroscope
of 1874 and 1875.*

THERE were two pipe lines overlooked in the enumeration in the last chapter, viz: the Hunter & Cummings, which extended from Criswell City, Butler county, Pa., to the Alleghany river, at Brady's Bend, a distance of about four miles, and the Antwerp Pipe, which made deliveries at Fullerton Station, Clarion county, and extended to the wells of the Clarion field. The Hunter & Cummings Line was constructed in 1874 for the express purpose of facilitating the producing business of the owners. But for some reason, not fully explained, the railroad company refused to furnish cars for the transportation of their product. A side track and loading tracks had been placed in position at the expense of Hunter & Cummings, and with the advice and consent of the railroad company. This appears rather a strange treatment on the part of a railroad company which is generally supposed to invite such patronage. However, Hunter & Cummings were not ready to give up to what they termed bulldozing, and proceeded to force thier product through the pipe, and, no cars being in readiness, as agreed by the railroad company, the oil was permitted to flow into the river and float where it pleased. This seemed a peculiar proceeding, but it was one at which the railroad company became alarmed, and submitted without delay to the demands of the shippers. It was what may be termed a case of force. The railroad managers saw at a glance that they were dealing with men who were determined to exact their rights even at the expense of a suit for damages and loss of property. It is, perhaps, sufficient to relate that ever afterwards cars, at the loading tracks of the company, were always in abundance when needed.

The Antwerp Pipe did a very successful business while the district immediately surrounding St. Petersburg was yielding profusely. It was entitled the "Antwerp" simply because the little town of Antwerp, which had been erected for the occasion near the first Huling's well on Ashbaugh run, was the objective point in its construction. The district enlarged in such haste thereafter, however, that the Antwerp Pipe became quite an extensive affair. Its management was in the hands of Mr. H. M. Hughes, of Franklin, Pa., and remained so until the line, in 1875, became completely absorbed by the combination of pipe lines. This pipe was extended to the Sandy section in October, 1873, and there connected with the Oil City Line. In those days the general charge for piping oil was twenty cents a barrel, but competition sometimes resulted in serious reductions from this rate and consequent loss to the stockholders. This gave rise to the negotiations, having in view a general combination of interests of all competing lines, or, in other words, in the pooling of issues. The first grand attempt of this kind was a proposition from the Grant, Karns and Antwerp lines, which had arrived at a point of coalition, to absorb the interests of the Pennsylvania Transportation Company, of which Henry Harly was the moving spirit. Henry met the others in convention at the Frisbe House, Parker, where his generosity in ordering first-class wines won for him the especial regards of the negotiators. The matter was never fully consummated, having, as there was found, immediately after this meeting, to be something irregular with the workings of the Pennsylvania Company, and it was dropped like something too hot to handle. This meeting occurred in October, 1866, and on the 29th of the same month legal proceedings were instituted against Harly on a charge of false pretense, preferred by F. W. Mitchell, of Oil City. On the same day as Mr. Harly was passing through the city he was accosted by the officer, but promptly gave bail for his appearance at court. Mr. H. was tried on this charge and acquitted, and the squeezing process was not resorted to again in his case. The Pennsylvania Transportation Company

ceased, however, to exist as a business organization, having sunk, not only much of the property of patrons, but all of its earnings and all it could borrow. The material afterwards fell into the hands of the great pool, and Harly's career as a banqueter came to an end. While he flourished as the manager and controlling spirit of the pipe line he could furnish a greater number of banquets annually than Vanderbilt. He was a characteristic oil man, but the greasy wealth wouldn't stick to him. At the same time he was a rather brilliant business man and had he possessed a faculty for "retrenchment" he doubtless would have succeeded in capturing a permanent hold on some portion of the grand pipe monopoly which, if it does nothing more, pays good fat salaries to those in charge of its affairs.

THE PRESS OF THE REGION.

To the press of the oil region THE AGE thus far has devoted but little space. "The first daily" sprung into existence in 1865 at Titusville, entitled *The Titusville Morning Herald*, by Bloss & Cogswell, who had ventured their means in a manner that but few believed to be certain of success. It proved, nevertheless, a most profitable undertaking, and one that the residents of the oil region fully appreciated. The *Herald* maintained remarkable power throughout the domain of oil, as its columns were largely devoted to the interests of that industry. Its reports of operations and general news were accepted by everybody whose fingers had in any way become dipped in oil, as reliable. Just how the *Herald* lost this grip is not explainable, but certain it is, sometime during the fall of 1868, through some mismanagement in the production of an oil report, the paper fell from its lofty position, and, although the paper has continued to be conducted by two of the original owners until this day, it has never been able to regain what it then lost in the estimation of the oil trade.

The *Courier*, of the same city, was issued for the first time during the summer of 1868, and continued until 1881, when it was absorbed by the *Herald* and ceased to exist. The latter was a daily Democratic organ and the former was Republican.

The *Daily Derrick* was instituted in 1870 at Oil City, by W. H. Longwell and C. E. Bishop, the latter acting as editor and the former as business manager. For several months this venture wavered between life and death, with odds largely against life. The Titusville papers

commanded the attention of the general public, which all newspaper men know is disgustingly slow to accept or appreciate a new or good thing. This paper was given away to those who would dare unfold its pages and examine it. Finally its worth as an exponent of the correct views of the oil trade began to be felt and during the first year it became *the* daily of the oil country. Its battles for and on the side of the producers, during their great struggle with the South Improvement Co., in 1872, and its war on the Alleghany Valley Railroad, which occurred almost at the same time, gave it a popularity it never fully lost. Its usefulness as a reporter of transactions in oil affairs was great from 1872 even to the present time, though it cannot be said that it maintains superiority by any means.

The *Parker Daily* was the next daily set afloat. This was founded by Geo. A. Needle, at Parker City, in 1874, and as regards financial results it was a complete failure. The paper, at the beginning, was altogether too large and too expensive for the patronage or support it received. The town, at the time, contained about 5000 inhabitants, but the business did not warrant the outlay incurred in the issue of a large morning paper, supplied with the telegraph news. The paper was edited by Major McClintock, an old Tidioute journalist of more than ordinary ability. After a few months' run, however, the *Daily* was found to be a non-paying institution and the telegraph expense was suspended. It continued as a morning paper for a period of nine months, when it was transformed into an afternoon sheet. As a rule afternoon papers in the oil region are not a success, as the people are of the stirring, wide-awake, and generally brilliant and intelligent character. Their paper and coffee after breakfast always mingle interests. After a six months' run it again flopped over and appeared in the morning, looking quite as healthy as it had ever done. In this condition it continued until its final demise in 1877, and upon its ruins was erected a weekly entitled the *Parker Phoenix*, which still flourishes.

Aside from the *dailies* named there are a large number of weeklies, some of which had been established long before the breaking out of the oil fever. Among these was the Venango *Spectator*, one of the most successful ventures of the kind in the oil country. Its files are of no uninteresting character. It is a peculiar circumstance that the bursting forth of the oil excitement in its most malignant form occurred simultaneously with the firing of Fort Sumpter, and

it is quite interesting to read the columns of the *Spectator* of those days, the co-mingling of war and oil news.

Almost every town in the country of a thousand inhabitants or more, has been supplied with weekly papers, or papers of its own manufacture, from the earliest stages of oil progression. Parker City had the *Oil Men's Journal*, a large and well conducted sheet, by Clark Wilson; Emlenton had the *Rising Sun*, Clarion had the *Republican* and another, St. Petersburg had the *Record*, and in the early days Oil City had the *Register*, by Johns; Tidioute had the *Journal*, by C. W. McClintock, and Tionesta had a small issue of many titles, and Warren has two, the *Mail* and *Ledger*, both of which are successful institutions. Oil City, moreover, aside from the weekly *Register*, by Johns, enjoyed a Sunday paper known as the *Call*, edited and published by Frank Taylor, who, for several years, occupied the position of editor of the *Daily Derrick*. The *Call* was established in 1876 and continued for nearly two years with varying success and failure. The venture was then abandoned and Mr. Taylor returned to the position abandoned at the establishment of the *Call*.

OIL AFFAIRS.

The producer of petroleum enjoyed a fair degree of prosperity during the seasons of 1874 and 1875, though during the latter part of 1875 especially, there was a notable improvement in values throughout the whole region. The excessive stocks created during the large over production of Butler and Clarion counties, which occurred in 1873 and 1874, had now begun to weigh less heavily upon the trade. In fact it began to be whispered, in various channels, that there was a possibility, if not a probability, of the world requiring more oil than even the enormous pools of Butler and Clarion could furnish. The daily yield of the entire region, however, varied but little during the whole year of 1875. On January 1st, the production was 27,900 barrels per day, and this was the highest point it reached during the year. There was a gradual decline from month to month though it was exceedingly moderate until the month of February, 1876, when an increase from 23,100 barrel a day in January to 25,440 occurred. This increase was mainly due to the augmentation of the volume of operations in Clarion county. The section surrounding Edensburg and Elk City had become the seat of a large amount of business, and the whole era as far in any direction from Edensburg as the conglomerate formation extends.

THE FUTURE OIL SUPPLY.

A SCIENTIST'S VIEW ON THE SUBJECT.

Professor Lesley, the State Geologist of Pennsylvania, in a letter to a gentleman of Central Pennsylvania says: Disturbed regions do not yield flowing and spouting wells. This is the reason why we assert with the utmost confidence that no oil will ever be got throughout the whole extent of Middle Pennsylvania, although the actual oil bearing formation of the oil regions zigzags in its outcrops through twenty counties. The same good reasons why the coal beds of Schuylkill, Lehigh and Luzerne are all anthracite, is good reason why no oil will be got from the Chemung rocks which underlie those anthracite basins and come to the surface all around them.

You do me the honor to say that hundreds of intelligent men will await with much interest my reply to your questions. But the experience of a long and active geological life has convinced me that very few persons take any real interest in the carefully considered and properly guarded statements of a sound and judicious geologist respecting the more dark and difficult topics of his science. What business men want is a plump and plain assertion. They do not care much about it. They hate uncertainty. They distrust a man who knows enough to confess his ignorance. They will blindly follow the man, however really ignorant, who will only swear roundly that what he affirms is undoubtedly the fact. It is not necessary to go outside the history of oil exploration to confirm my convictions of this prevalent disposition of the business community.

My advice, as a geologist, to those who propose to speculate in oil drilling, outside of already defined paying districts, is to put their money into some business nearer home which they know all about, for their chances of striking oil outside the well defined limits (I mean well defined by paying wells) is about one in a hundred.

We have every reason to expect the discovery of one or more small pools like those recently found in Forrest county and in that region; but for all the rest of Western Pennsylvania, there have been enough trial wells to make it very probable that all the oil is confined to the "oil regions proper," as so known and designated by oil men.

LIGHTNING vs. PETROLEUM.

The electric destroying agency made its inaugural attempt for the season at the Bay of New York, on the 10th inst., by the destruction of eleven tanks containing several hundred of thousands of barrels of oil and considerable other property connected therewith. The property destroyed was owned principally by the National Dock Storage Co., and the oil belonged to the various branches of the Standard Oil Co., doing business in New York. This is a tolerably lively beginning and if maintained throughout the season may result in a considerable reduction of "stocks on hand." In the Oil Regions, late years have not witnessed such conflagrations as characterized the first decade after the large accumulations of Butler and Clarion counties. For a number of years the lightning seemed to maintain a vigilant search for iron storage tanks which possessed wooden tops or covers. The astute speculator soon discovered this and replaced these tops with iron, and added, still further, other preventives in the form of lightning conductors. As a consequence large oil fires from this cause have been reduced to a rarity throughout the region. A general protective system should be adopted in all parts of the world where this remarkably combustible material is stored.

PETROLEUM EXCHANGE ELECTION.

The New York Petroleum Exchange held its annual election for officers yesterday. There were two tickets in the field, one being headed "Brokers' Ticket," and representing that element in the Board of Directors more completely than did the regular ticket. It is notable, as indicating the closer connection which has been established between the petroleum trade and the Stock Exchange, that four or five of the directors named on the Brokers' ticket, are members of the Stock Exchange. The officers on both tickets were the same, the only competition being on the directors. The following ticket was elected:—President, L H Smith; 1st Vice-President, W H Johnson; 2d Vice-President, D R Offley; Treasurer, Henry M Curtis; Secretary, William Fisher; Directors:—Nic. Mehlen, E H Willard, James A Waugh, H L Hotchkiss, P V C Miller, C E Orvis, Frank Kimball, H L Horton, P B Crosby, W H Henriques, Jas L Anthony, J W Copman, G R Gibson, Livingston Roe, F H Cohn, F D Stead, Irving S Bernheimer, H O Beebe, Minatt Mitchell, Josiah Lombard.

Since January 1st the membership of the exchange has increased from 201 to 430. The treasury has a balance of \$26,000, with no outstanding obligations. Eleven new numbers were elected on Monday. The assessment for the current fiscal year has been fixed at \$25.

MATTERS in the Western coal and iron trades are beginning to assume a gloomy aspect. The conference between the representatives of the Western Iron Association and of the Amalgamated Association has been held, and the conclusion promptly reached that neither party would yield to the arguments of the other. We hardly believe that this ends all efforts at a compromise, because it will not be until the first of June that any changes will go into effect. At present, there is probably nothing but preliminary maneuvering, and neither employees nor the employers are probably willing to forego the faint chances that the situation in the trade may afford developments during the next two or three weeks which will be favorable to them. As matters now stand, the position is partly clearly defined. The trade is suffering from overproduction, partly real and partly apparent, through the usual tactics of buyers of keeping out of falling market. Prices have reached a very low figure, merchants in Pittsburg having sold as low as 1.80@1.90c., while a year ago, when the same wages were prevailing, it ranged between 2.30@2.40c. It is true that pig iron is lower, and that fuel is cheaper; but these items do not compensate for more than a part of the falling off in the selling price, and manufacturers demand a scaling down in wages of from 10 to 20 per cent. Last year the men asked for an increase, and did not get it, even after a long struggle; this year, they resist a reduction, and, as is usual in such cases, may be even more willing to stand off for a long period. As we have already noted, a forced restriction would do the trade much good, and might ultimately lead to a revival of the demand.

In the coal trade the labor troubles are assuming a serious aspect. A scaling down of wages is attempted in the Pittsburg District, in Ohio, Iowa, Illinois, and other Western States, and has been partially successful. It is the natural result of an enormous expansion in the production, and a partial decline in the consumption, leading to a serious decline in values. The railroad pits of the Pittsburg district are out against a reduction from 3½ to 3 cents per bushel for mining, and the men profess to be determined to use all efforts to keep the mines idle.

RUNS, DELIVERIES, STOCKS.

TABLE showing the March and April Pipe Line runs and shipments, with stocks, on April 30th, 1883—official. Each barrel 42 gallons:

DISTRICT.	PIPE.	RECEIPTS, BARRELS. March.	BARRELS. April.
Bradford	United		
Tidiotte & Titusville	"		
Lower Gountry	"		
Monongahela	"		
Total		1,783,537 51	1,856,792 91
Bradford	Tidewater	200,254 32	205,595 85
Titusville	Octave Oil Co.	3,713 00	3,948 80
Oil City	Charley Run	570 54	116 81
Shaffer	Shaffer Run	383 00	683 75
Franklin	Franklin Pipe	8,067 96	9,077 45

Total all Lines	1,996,526 33	2,076,215 51
Average per day, April, 1883		69,207 18
Average per day, March, 1883		64,404 01
Average per day, February, 1883		63,208 24
Average per day, January, 1883		65,124 99
Average per day, December, 1882		72,413 54
Average per day, November		73,098 09
Average per day, October		85,227 24
Average per day, September		96,079 68
Average per day, August		111,243 38
Average per day, July		95,192 11
Average per day, June		95,522 95
Average per day, May		85,563 08
Average per day, April		80,093 79
Average per day, March		83,724 96
Average per day, February		83,547 40
Average per day, January		71,855 43

Deliveries.

DISTRICT.	PIPE.	March.	April.
All Points	United	1,378,966 55	1,584,047 32
Titusville	Octave Pet. Co.	3,050 00	4,717 78
Franklin	Franklin Pipe	4,301 50	4,563 81
Shaffer	Shaffer Run	95 86	92 38
Oil City	Charley Run		
Bradford	Tidewater	248,430 52	314,957 62
Total deliveries		1,634,844 43	1,908,378 91
Everage per day, April			636,126 30
Amnt of runs in excess of Shipments		361,671 90	167,836 66

DISTRICT.	PIPE.	Net Stocks, Mar. 31. Barrels.	Net Stocks, April 30. Barrels.
Oil City	Charley Run	3,864 00	3,986 31
Bradford	Tidewater	2,420,203 38	2,309,553 22
All Districts	United	33,112,011 44	33,123,726 44
Shaffer	Shaffer Run	27,388 23	28,052 75
Titusville	Octave Oil Co.	5,708 00	5,520 50
Franklin	Franklin Pipe	25,505 79	30,019 43

Total April	35,500,859 75
Total March, 1883	35,594,680 84
Total February, 1883	35,513,157 83
Total January, 1883	34,952,662 23
Total December, 1882	34,335,180 58
Total November	33,604,841 36
Total October	32,210,533 76
Total September	31,253,074 61
Total July	30,157,021 20
Total June	29,540,517 47
Total May	28,833,715 51
Total April	27,969,884 48
Total March	27,252,806 93
Total February	26,414,274 36
Total January	25,788,071 79

Decrease, April	93,821 69
Increase, March, 1883	61,523 01
Increase, February, 1883	600,495 60
Increase, January, 1883	617,481 65
Increase December, 1882	730,239 22
Increase, November	838,195 69
Increase October	556,111 91
Increase September	957,485 53
Increase, August	1,096,026 41
Increase, July	616,503 73
Increase, June	706,801 96
Increase, May	863,631 03
Increase, April	717,077 55
Increase, March	838,532 57

Average decrease per day, April	3,127 72
Average increase per day, Mar., 1883	1,984 55
Average increase per day, Feb., 1883	21,446 27
Average increase per day, January, 1883	19,918 76
Average increase per day, Dec., 1882	23,556 10
Average increase per day, November	18,537 06
Average increase per day, October	27,823 88
Average increase per day, September	27,874 64
Average increase per day, August	35,355 69
Average increase per day, July	19,887 21
Average increase per day, June	23,902 58
Average increase per day, May	27,859 06
Average increase per day, April	23,902 58
Average increase per day, March	27,049 44
Average increase per day, February	22,364 00
Average increase per day, January	12,174 73

APRIL OFFICIAL QUOTATIONS FOR CRUDE.

THE following table shows opening, highest, lowest, and closing quotations at the Bradford Oil Exchange each day; also average for the month:

	Opening.	Highest.	Lowest.	Closing.	Avg.
1					
2	95½	96½	93¾	94½	94½
3	94¼	95¼	93¾	95¾	94¾
4	95¾	96½	94¾	94¾	95¾
5	94½	94½	91¼	92 1-4	92¾
6	92	92¾	91	91¾	91¾
7	91 3-8	92¾	91¾	91¾	92
8					
9	92¾	92¾	88¾	89	90½
10	89	91¼	88¾	90	90
11	91	96¾	91	96½	93¾
12	98	98	94¾	96½	96¾
13	96	96½	93¾	94¾	94¾
14	94¼	94½	93¾	93¾	93¾
15					
16	93½	95½	92¾	95½	94 1-4
17	94¾	95¾	93¾	93¾	94¾
18	93¼	95¾	93¾	93 1-4	94½
19	93½	94¾	93¾	94	94 1-4
20	94	94¾	93¾	94 1-4	94 1-4
21	94¼	94¾	94¾	94 1-4	94 1-4
22					
23	94¾	94¾	92 1-4	92¾	93¾
24	93¾	93¾	92½	93	92¾
25	93	93¾	89¾	90 1-4	91¾
26	90 1-4	90¼	85¾	86½	88
27	85¾	89¾	84¾	88 1-4	86¾
28	88¾	88¾	86¼	86¾	87½
29					
30	87½	90½	87½	88½	88¾
General Average,					92¾

APRIL OFFICIAL QUOTATIONS FOR REFINED.

THIS table gives the daily quotations for refined oil at the principal foreign as well as domestic ports:

	N. Y. Philadelphia. cts.	Baltim're. cts.	London. cts.	Bremen. pence.	Antwerp. m'rk.	fr'cs.
1						
2	83¾	8¼	8¼	65½	7.85	19¼
3	83¾	8¼	8¼	65½	7.85	19¼
4	83¾	8¼	8¼	65½	7.85	19¼
5	83¾	8¼	8¼	65½	7.85	19¼
6	83¾	8¼	8¼	65½	7.70	19¼
7	83¾	8¼	8¼	65½	7.70	19¼
8						
9	83¾	8¼	8¼	61½	7.70	19¼
10	83¾	8¼	8¼	61½	7.70	19¼
11	83¾	8¼	8¼	61½	7.60	19
12	83¾	8¼	8¼	61½	7.70	19¼
13	83¾	8¼	8¼	61½	7.70	19¼
14	83¾	8¼	8¼	61½	7.70	19¼
15						
16	83¾	8¼	8¼	61½	7.70	19¼
17	83¾	8¼	8¼	61½	7.70	19¼
18	83¾	8¼	8¼	61½	7.70	19¼
19	83¾	8¼	8¼	61½	7.70	19¼
20	83¾	8¼	8¼	61½	7.70	19¼
21	83¾	8¼	8¼	61½	7.70	19¼
22						
23	83¾	8¼	8¼	61½	7.70	19¼
24	83¾	8¼	8¼	7¼	7.65	19¼
25	83¾	8¼	8¼	7¼	7.65	19 1-4
26	83¾	8	8	7 1-4	7.65	19 1-4
27	8	7¾	7¾	7 1-4	7.40	19
28	8	7¾	7¾	7 1-4	7.40	19
29						
30	8	7¾	7¾	7 1-4	7.40	19

THE letter sent from Bay City, Mich., bearing on the envelope the sender's business card as "dealer in nitro glycerine, dynamite, giant powder and high explosives," got the receiver in England into serious trouble, the authorities requiring clear proof that the Michigan man was not a provider of revolutionary material to Irishmen.

REPORT OF OIL OPERATIONS for APRIL.

Wells Completed.

BRADFORD.

District.	Wells.	Prod'n.	Dry.
E. & W. Branches	36	360	3
Kendall Creek	3	20	.
Foster Brook	3	33	.
Cole Creek & B.	2	85	.
Indian Creek	2	20	.
Kinzua	3	5	2
Four Mile	3	18	.
Totals	52	541	5

ALLEGANY.

Alma	13	165	.
Bolivar	24	300	2
Wirt	.	.	.
Genesee	38	470	1
Clarksville	.	.	.
Scio	20	217	1
Totals	95	1152	4

WARREN AND FOREST.

Tiona and Glade	13	109	2
Clarendon	2	25	.
Forest and Sheffield	32	1995	6
Totals	47	2129	11

LOWER FIELD.

Butler and Armstrong	6	200	1
Bald Ridge	.	.	.
Venango County	12	45	.
Clarion	.	.	2
Totals	18	245	3

GRAND TOTALS.

Warren and Forest	47	2129	11
Allegany	95	1152	4
Bradford	52	541	5
Totals	194	3822	20
Totals, March	141	4242	8

Drilling Wells.

District.	Drilling.	Rigs.	Total.
East Branch	3	8	11
Big Shanty	10	9	19
Quintuple Tract and West Branch	1	10	11
Kendall Creek	10	11	21
Foster Brook	4	9	13
Cole Creek and Bing	1	3	4
Indian Creek	4	2	6
Four Mile	5	5	10
Kinzua	3	1	4
Elk County	2	2	4
Lower McKean County	1	1	2
Totals	44	61	105

ALLEGANY FIELD.

Alma	21	18	39
Bolivar	14	17	31
Wirt	2	2	4
Genesee	35	44	79
Clarksville	1	3	4
Scio	21	9	30
Totals	94	93	187

WARREN AND FOREST.

Tiona	9	6	15
Clarendon and Glade	6	7	13
Cherry Grove	2	1	3
Sheffield and Forest County	46	36	82
Totals	63	50	113

LOWER FIELD.

Venango County	6	8	14
Butler County	.	.	.
Bald Ridge	10	9	19
Totals	16	17	33
Grand Totals Bradford	44	61	105
Allegany	94	93	187
Warren and Forest	63	50	113
Miscellaneous	217	221	438
Totals, April	221	222	443
Increase, April	9	5	14

Warren and Forest Operations for April.

WELLS COMPLETED.

Farm	Operator.	Production.
Sweden, J. Magee	.	dry
Baker, Bell & Co.	.	2
Schofield, A H Daniels	.	8
Pleasant Township, Magee & King	.	dry

CLARENDON

Brennan, Porter & Co.	5
Lot 106, Sherman & Co.	10

TIONA.

160, Helm & Mealy	10
161, A & S Short	5
164, Forgie & Smith	5
165, Clark & Foster No. 2	7
165, " " " 3, est.	20
165, C H Coffin & Co No 2	12
166, Arctic Oil Co No 1	15
200, W W Ballard No 1	15
205, Roberts & Elliott	10

MEAD.

584, C W Brown & Bros.	dry
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COOPER TRACT.

2,735, McCalmont Oil Co No 5	dry
2,735, " " L A B & Co No 2	90
2,735, " " " 3	75
2,735, " " " 4	300
2,735, Anchor Oil Co No 4	60
2,735, " " " 5	10
2,735, " " " 9	125
Grandin pur, Anchor Oil Co, lot 1, No 17	75
Syndicate, " " " 8	140
Cooper tract, Anchor Oil Co " 11	60
" " " 5	dry
" " lot 7, Melvin, Walker & Co, No 7	250
" " " 8	5
" " " 4, Forest Oil Co No 2	dry
" " " 3	52
Herriek, Union Oil Co, No 1	300
E T Co, Fertig & Henne	dry
Tract 2,877, H B Porter, No 5	60
" 2,877, " " 3	75
Milkinson tract, McKinney & Co	dry
Tract 3,193, Grace well	dry
" 3,193, div E, D J Thayer & Co	dry

BALLTOWN.

Lot 733, Shamrock Oil Co	dry
Tract 4,792, D W Clark & Co	20
" 3,133, Murphy & Co	80
" 5,236, Welsh & Co	100
" 4,236, Crandin & Co No 6	175
" 5,236, " " 7	30

Wells completed	44
Production	2279
Dry	11

DRILLING WELLS.

GLADE.

Irwin, C W Brown & Bros	sand
Glade Run, "	rig
Davis, unknown	sand
Schofield, A H Daniels	rig bldg
McWilliams, Branch Bros	sand
Curtis, unknown	rig bldg

CLARENDON.

Riddlesperger, Riddlesperger Bros	200
" Wade & Co	rig bldg
Tolles pur, South Shore Oil Cil	rig
Lot 106, Sherman & Co	100
79, Anchor Oil Co No 5	100
79, " " 6	rig bldg

TIONA

Lot 109, Little Toby Oil Co No 5	100
165, Hill & Co	900
165, Clark & Foster No 4	100
165, " " " 5	rig bldg
165, " " " 6	rig bldg
165, C H Coffin & Co No 3	1000
165, " " " 4	rig
166, Arctic Oil Co No 2	50
166, Gurner Bros	200
200, W Ballard No 2	100
205, Robert & Elliott No 2	50
205, Halleck & Johnson No 1	100
205, " " " 2	rig bldg
205, Steele, Smith & Co	rig bldg
206, unknown	rig bldg

MEAD AND CHERRY GROVE.

585, C W Brown & Bros.	rig
589, Jno Markham	1000
589, " "	800

COOPER TRACK

Tract 2,735, McCalmont Oil Co No 4	1200
" 2,735, " " L A B & Co No 5	1500
" 2,735, " " " 6	1000
" 3,735, " " " 7	700
" 2,735, " " " 8	500
" 2,735, Reno Oil Co No 4	500
Cooper & Grandin pur, Anchor Oil Co No 2	700
" " " 3	rig bldg
" " " 7	rig
" " " 8	rig
" " " 6	600

Cooper & Graudin pur. Anchor Oil Co. No. 18	rig
" " " " " 24	100
" " " " " 25	rig bldg
" " " " " 26	rig bldg
" " " " " 27	rig bldg
Cooper tract, Clark & Foster No 3	sand
" " " " " 4	rig
" " " " " 5	rig bldg
" lot 7, Melvin W S & Co No 9	200
" " " " " 12	500
Herrick, Union Oil Co No 2	1200
" " " " " 3	400
" " " " " 4	rig
" " " " " 5	rig bldg
E T Co, Fertig & Co	1700
" " " " " "	800
" " " " " "	rig
Fox estate, F Fox	rig
Tract 2,877, H B Porter No 4	rig
" 2,877, " " " 6	rig bldg
" 3,198, Melvin W S & Co	700
" 3,198, Clark, Murphy & Breneman	200
" 3,183, div G, Miller & Co	1000
Clapp, J M Clapp	sand
J A Tract, Stewart & Co No 2	760
" " " " " 3	rig
BALLTOWN.	
Lot 732, Milier & Co	1100
740, " "	1000
741, John Markham	300
741, Balltown Oil Co	200
741, " "	rig bldg
4,721, Dutch Oil Co No 2	200
3,194, Porcupine Oil Co No 2	700
3,194, " " " 3	rig
3,194, " " " 4	rig
3,194, " " " 5	rig
3,195, A J Gartland	500
Tract 5,236, Welsh & Co No 2	100
5,236, Grandin, Kelly & Co No 8	rig
4,821, Balltown Oil Co No 7	rig
Rigs up and building	36
Wells drilling	46
Total	82

APRIL SALES AND RUNS.

FOLLOWING is a summary of the sales of oil at the Bradford, Oil City, Pittsburg and New York Oil Exchanges during the month of April. Nothing less than 1,000 barrel certificates ever sold ; each barrel represents forty-two gallons :

	Bradford.	Pittsburgh.	Oil City.	New York.
January, . .	23,885,000	11,441,000	27,163,000	
February, . .	19,412,000	9,153,000	22,207,000	
March, . . .	27,467,000	13,208,000	29,448,000	
April, . . .	22,245,000	8,325,000	19,171,000	15,000,000
May, . . .	39,777,000	21,814,000	38,402,000	35,000,000
June, . . .	29,969,000	20,417,000	38,127,000	21,000,000
July, . . .	48,736,000	22,040,000	31,536,000	22,400,000
August, . . .	34,494,000	16,140,000	50,000,000	20,000,000
September, .	113,402,000	67,220,000	156,450,000	48,500,000
October, . .	59,797,000	36,586,000	69,737,000	30,200,000
Nov.	105,500,000	76,000,000	164,000,000	91,000,100
Dec.	70,000,000	35,000,000	100,000,000	48,000,000
Jan. 1883 . .	41,867,000	39,626,000	56,001,110	36,000,000
February . .	34,043,000	20,391,000	44,000,000	35,000,000
March . . .	63,507,000	51,470,000	107,273,000	58,254,000
April . . .	54,026,000	42,939,000	74,000,000	46,000,000

Average daily runs and shipments each month of year to March 31st:

	Total Daily Runs.	Bradford Daily Runs.	Total Daily Shipm'ts.	Bradford Shipm'ts.	Char- ters.
January, . .	70,401	62,229	55,798	40,864	33,877
February, . .	81,853	72,825	63,062	47,183	43,075
March, . . .	81,186	65,758	53,489	38,963	41,080
April, . . .	80,158	67,392	54,413	35,662	35,453
May, . . .	83,397	75,472	56,478	43,329	47,220
June, . . .	89,103	78,701	65,266	47,980	54,829
July, . . .	87,948	65,445	61,779	41,013	34,213
August, . .	111,243	70,646	66,046	42,500	.. .
September, .	96,079	64,608	66,220	42,000	40,000
October, . .	85,227	.. .	67,132	41,000	.. .
Nov.	72,852	58,345	46,821	36,100	31,375
Dec.	64,624	49,789	36,140	18,603	42,545
Jan. 1883 . .	665	50,951	43,585	30,321	23,459
February . .	64,909	51,823	44,083	35,805	25,647
March . . .	64,228	51,005	52,572	39,509	32,091
April . . .	68,839	52,617	63,500	51,868	40,525

THE co-partnership heretofore existing between S. M. Willock, A. O. Tinstman, Jas. Lapan & Co. and John Willock, under the firm name of S. M. Willock & Co., proprietors of the Waverly Oil Works, of Pittsburgh, has been dissolved by mutual consent. All of the partners retire except Mr. S. M. Willock, who will continue the business under his individual name and will give personal attention to the already well established brands which have been built up under his direction of the Waverly Works.

THE *Oil and Drug Reporter* is sceptical of the Mexican oil fields and says: "Rather glaring accounts of the petroleum fields in Mexico are being printed in Mexican journals which find their way to the United States. According to these, two companies are now developing the Mexican fields, the Boston & Mexican, and the Boston & Vera Cruz Co's. The former is the original or pioneer company, and was organized in Boston, the latter company is an offshoot and was incorporated under the laws of Colorado, though the stock of both companies is largely held in Boston. In the Santa Teresa fields, situated some 20 miles northeast of Tumberdero, the head of navigation on the Tuxpan river. The locality is well on the foot-hills, at an elevation of 450 feet above the sea level. Work was begun last July, and a good well was sunk by six weeks of careful work. Passing through about 20 feet of soil and sand rock, various formations were encountered with more or less prospects of permanent flow of oil until the well was bored to a depth of 335 feet, and the rich petroleum rushed to the surface. The stratum of oil bearing rock has been pierced 35 feet, and furnishes oil whose gravity is 38 degrees as it flows from the well. The pipe of this well has been carefully plugged to preserve the oil." We print these statements for what they may be worth, but the names mentioned by our contemporary in connection with the matter raises the suspicion that the scheme is being developed chiefly for stock-jobbing purposes, and that the fields are too remote for profitable working, at least for some years to come. The exports of all mineral oils from the United States to Mexico during the last fiscal year were 1,570,000 gallons valued at \$250,000. As the Mexican fields are unlikely to extend their trade outside of their own States, we should not deem the project one specially inviting to heavy investments of capital. The Mexican fields would, perhaps, be better property to own than to operate at present.

THE PETROLEUM AGE.

DEVOTED TO THE

Interests of the Petroleum Trade.

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W. J. McCULLAGH,
 Editor.

When will the oil trade cease to be influenced by silly mysteries in a deplorably treacherous district?

With shipments large, consumption increasing, and production largely on the decline, a '76 boom might not be a great distance in advance.

The Bradford field continues as the great centre of oil production. What shall be done when it gives out, as it must do sooner or later, with the preponderance in favor of the sooner?

The Gartland-Porkey derrick was boarded closely from top to bottom, on all sides, in order to shut out the gaze of the scouts. Somehow the scouts got wind of what was going on, nevertheless.

There is what is termed as the "Murphy gang," and another the "Vanderbilt gang," existing down in the Forest and Warren desert. Just what these gangs are up to or what their aim is, has not been made clear to the public. They say they occasionally contest for some big thing in the shape of territory or the oil market.

Why should a drop in the price of oil occur at the introduction of a new well any more than that a decline should occur in the price of butter and cheese at the intelligence that another cow had been heard from? This is the crude argument used by a "bull" in the oil market, and there is more in it than one discovers at first glance. The oil trade is, perhaps, more easily frightened into a panic than any other trade in existence. To the solid element the Warren and Forest fields never had a very dangerous appearance, but to those who always have the market flopped over and all "broke up" and sent bottomless to the bow wows, a ten barrel spouter "around the corner," twenty rods from another of similar calibre, is a calamity. But these cranks will always be with us, and, though their

presence is sometimes quite damaging to the business, yet, nevertheless, they must have an existence. A new well should have the same influence upon the market now that a fresh bovine should have on the butter market, or the breaking of a new farm in Dakota should have on the market in the corn exchange.

Russian oil dealers are struggling hard to obtain a foothold in the European market for their petroleum supplies. They find it a very difficult task, however, owing to the inferiority of the article as compared with that produced in America. If Russian dealers would direct their efforts toward "enlightning" the inhabitants of their own country on this subject, the result would prove much more satisfactory in the immediate future. America has nothing to fear from such sources. It is the wildcatter and his chance of developing something new in such deserts as those of Warren and Forest counties, that troubles it and all concerned.

"Petroleum against Protection" is the title of a pamphlet by H. D. Hancock, Esq., of Franklin, Pa., received at THE AGE office a few days ago. It is obvious Mr. Hancock is strictly opposed to the protection tariff system of the country, and gives good reasons for his opinion on the subject. The direct effect of a protective tariff is to enhance the price of the article taxed to the consumer. Were there no protective tariff and had there been none during the past twenty-one years, so that the oil region public could have purchased its needed supplies free of duty, it would have been saved the enormous amount of \$91,982,500, according to Mr. Hancock's calculation. Following is the tabulated statement of articles thus taxed and the estimated amount for the period named:

On steel and iron rails	\$ 2,232,500
On iron, steel and lumber in locomotives and cars, etc	1,000,000
On iron pipes used in producing and transporting oil	2,500,000
On engines and boilers	11,250,000
On lumber used in fixtures at wells	3,000,000
On drilling tools sucker rods, etc	1,000,000
On lumber, iron, upholstering, etc. in dwelling houses...	5,000,000
On furniture and household goods	8,750,000
On wearing apparel, shoes, etc	47,250,000
On sundries not above included	10,000,000

Total \$91,982,500

In this list are not included duties on silks, liquors, wines, tobacco and other similar articles.

AN OIL TAX.

It is, perhaps, a truism that there does not exist a representative body of men on the face of the earth in which could not be found at least a few thoroughbred cranks. As a rule this species is always sent in from rural "deestricks," where ignorance is at a premium and intelligence tramps the highway without finding a suitable person upon which to lay its mantle. This seems especially true of the Pennsylvania Legislature of late. There are a few "round heads" from the mountains who think they tickle the ribs of their buckwheat constituents to a laughable degree by their sickly attempts at making motions and offering resolutions and framing acts for the taxation of oil. Of course their idea that the citizens of the oil country dwell in the midst of luxury and splendor, and strive each with the other in seeking an opportunity to squander at least a portion of their fabulous fortunes, is entirely correct. The people of the oil country are all reveling in wealth. A man who does not and cannot afford a coach and four, or a woman who does not wear a garb decked with diamonds, is a rarity. This is what "country folk" seem to believe and their silly representatives in the Legislature fully agree with them. Now it is about time this nonsense ceased and the time spent in trying to pass unconstitutional acts be spent in studying the laws of health and how to avoid delirium tremens and other such unearthly complaints. The oil country, however, does not fear such a tax as that proposed and probably would not respond to the call of a collector until the highest authority of the nation had confirmed the decree, which is a circumstance never to be feared. The oil region representatives have been proven to be men of ability as well as agility in this fight, and have nothing to fear from the result except the numerical strength of the so-called "moss-bank" element. The arguments in favor of such tax have been the most childish ever attempted by intelligent men. The idea that a tariff on oil shipped out of the State would directly affect the shipper or refiner is fallacious. Every tax that has ever applied its forces to petroleum has effected the industry to the core, and every citizen engaged in the business or interested in any manner, is robbed of just so much of his rights. It is hoped this piratical nonsense will shortly cease at Harrisburg.

The McKean field, in a few months hence, will not have three dozen drilling wells.

PETROLEUM vs. CRANKS.

Among the various uses to which petroleum is applied, is one of a rather fiery character, adopted by a woman at Utica, N. Y., on the 4th inst. Becoming tired of her mundane existence and being somewhat short in the usual allowance of good sense, she bathed herself with the liquid without even going to the trouble of removing her clothing. The material was then fired, and it was the work of but a few moments for the woman to be transformed from a being of earth to a resident of the unknown. This is certainly a strictly fresh process and one that may prove of good use in the future. It is desirable that all the cranks of the United States may imbibe the bullish spirit of the oil market as did this foolish woman. It seems to answer two very good ends—it aids in increasing the consumption of the article and in destroying detestible cranks, which seem to abound in this fair land to a remarkable degree.

GAS FOR GLASS.

A scheme is on foot, originated by Mr. McCourtney, of Four Mile, to establish a glass manufactory in Bradford, the material to be procured from his lands at that place. Several practical tests have been made of the surface conglomerate, and it has been found to contain from 75 to 90 per cent. of silica. This, if true, should result in great benefits to the oil country, as this species of rock is found in great abundance in many parts. Then, furthermore, the article of fuel, *the* important item in the expense of conducting such a business is another matter largely in favor of the oil country as a seat for such business. A test was made at Four Mile on the 14th inst., of the power of natural gas for the purpose, and the result was highly satisfactory. A proposition has been made to the Board of Trade of Bradford, for the establishment of a manufactory, and beyond doubt it would be a most valuable enterprise, not only for the interests of the city, but for the stockholders as well.

If speculators could foresee what a half hour is liable to produce, they would be saved serious losses; but, then, the other fellow would "get it bad" just the same. These violent fluctuations are dangerous, but they aid in averaging up profits and losses, if nothing more.

The Gartland well, warrant 3194, is a very small affair.

STATEMENT made by the United Pipe Lines July 10th, 1880, and enlarged to March 31st, 1883. It gives gross stocks, sediment and surplus, net stocks, outstanding balances, receipts (or runs) from all sources, and total deliveries, or shipments :

	Gross Stocks.	Sediment and Surplus.	Net Stocks.	Outstanding Acceptances.	Credit Balances.	Receipts from all Sources.	Total Deliveries.
1877—April	1,895,153.71	77,386.70	1,817,767.01	449,640.14	1,368,126.87	200,570.81	125,797.90
May	1,762,602.64	75,363.87	1,687,237.77	663,663.71	1,003,574.06	493,200.58	619,612.26
June	1,596,367.68	81,255.42	1,488,112.26	661,786.57	826,325.69	538,906.95	737,609.77
July	1,482,433.51	81,741.50	1,400,692.01	667,166.36	733,625.65	615,145.46	699,476.18
August	1,489,052.53	81,144.63	1,407,907.90	643,281.46	764,626.44	673,403.04	666,144.28
September	1,339,032.27	67,163.68	1,271,868.59	552,676.26	719,192.33	625,225.37	769,745.57
October	1,434,728.78	46,771.99	1,387,956.79	673,850.05	714,106.74	687,094.59	570,092.71
November	1,691,399.52	39,418.00	1,651,981.52	657,591.36	994,390.16	913,644.19	649,242.70
December	2,830,413.36	68,729.63	2,761,685.73	754,338.25	2,007,347.48	1,656,150.37	506,332.99
1878—January	3,124,641.15	72,453.43	3,052,187.72	864,711.41	2,187,476.31	872,681.18	715,149.78
February	3,439,526.98	82,452.66	3,357,074.32	1,404,292.13	1,952,782.19	1,030,688.44	720,478.14
March	3,940,000.65	92,963.06	3,847,037.59	1,487,430.50	2,359,598.09	1,196,251.26	701,681.27
April	4,335,274.84	133,935.76	4,201,340.08	1,615,791.19	2,585,548.89	1,137,359.40	778,050.53
May	4,609,681.45	150,117.76	4,459,563.69	2,065,333.31	2,394,230.38	1,104,352.40	843,081.33
June	4,719,699.25	181,800.03	4,537,899.22	1,950,420.81	2,587,478.41	1,092,604.02	1,004,474.55
July	4,885,851.72	229,080.78	4,656,770.94	2,078,466.56	2,578,301.38	1,258,648.45	1,108,074.33
August	4,571,658.59	217,085.19	4,354,573.40	2,064,590.75	2,289,982.64	1,195,268.67	1,496,009.04
September	4,410,061.84	225,088.86	4,184,972.88	2,705,853.95	2,479,119.03	1,182,118.57	1,318,265.33
October	4,072,267.43	234,050.89	3,838,576.54	1,517,484.27	2,321,092.27	1,271,174.73	1,564,984.43
November	4,083,972.42	216,655.30	3,867,317.12	1,784,443.35	2,082,873.77	1,159,623.71	1,129,047.42
December	4,098,200.92	201,470.30	3,896,730.62	1,741,311.07	2,155,419.55	972,338.83	924,035.93
1879—January	4,759,031.41	182,707.80	4,576,323.61	2,153,763.83	2,422,559.78	1,231,237.19	546,271.74
February	5,157,646.15	171,689.80	4,985,956.35	2,340,238.22	2,639,718.13	1,055,377.95	643,828.71
March	5,503,768.71	190,797.91	5,312,970.80	2,484,861.83	2,828,088.87	1,363,512.17	1,029,029.70
April	5,885,675.24	211,957.06	5,673,718.18	2,644,301.36	3,029,416.82	1,379,349.76	1,015,482.04
May	6,180,843.53	315,992.98	5,864,850.55	2,522,846.36	3,342,364.19	1,488,514.31	2,228,043.27
June	6,426,802.45	334,457.29	6,092,345.16	2,959,921.12	3,132,424.04	1,437,250.90	1,204,557.54
July	6,419,699.08	323,295.32	6,096,403.76	2,323,575.29	2,772,828.47	1,472,651.01	1,465,518.05
August	6,380,606.63	300,345.15	6,078,261.48	3,581,224.03	2,497,037.45	1,714,620.11	1,728,940.81
September	6,589,859.83	325,363.85	6,264,995.98	3,783,480.38	2,481,015.60	1,691,863.41	1,455,811.45
October	6,701,209.87	299,393.67	6,401,816.20	3,788,155.65	2,613,660.55	1,646,725.06	1,502,991.20
November	6,951,133.67	303,641.17	6,647,492.50	3,927,300.18	2,675,192.32	1,600,961.29	1,328,621.19
December	7,362,409.76	294,571.37	7,067,838.39	4,235,459.40	2,832,378.99	1,771,781.24	1,331,822.12
1880—January	7,735,257.38	295,517.60	7,439,739.78	4,436,788.55	3,002,951.25	1,832,963.04	1,145,194.98
February	8,187,012.49	322,568.93	7,864,443.56	4,602,286.49	3,262,157.07	1,607,663.89	1,178,111.92
March	8,621,097.49	351,130.35	8,269,967.14	4,811,894.33	3,458,072.81	1,815,133.31	1,396,037.88
April	9,662,354.59	388,558.16	9,273,796.43	5,846,536.60	3,427,259.83	1,739,297.37	723,794.73
May	10,306,078.79	454,193.73	9,851,885.06	6,361,320.05	3,490,565.01	1,552,240.91	975,061.26
June	11,266,771.77	477,431.60	10,789,340.08	7,397,131.89	3,392,208.19	1,781,937.29	848,339.08
July	12,039,010.00	475,446.56	11,563,563.44	8,125,241.25	3,438,332.19	1,890,161.44	1,095,528.25
August	12,749,623.28	462,987.28	12,286,636.00	8,635,394.80	4,651,241.20	1,904,452.70	1,177,448.42
September	13,618,276.03	382,398.71	13,236,327.32	9,287,193.94	3,949,133.38	2,075,105.26	1,115,184.71
October	14,020,877.32	391,331.55	13,629,545.84	9,448,615.77	4,180,930.07	1,999,487.98	1,598,285.06
November	14,656,891.55	341,262.67	14,315,628.88	10,038,824.08	4,231,804.80	1,859,991.50	1,064,146.39
December	15,369,758.67	361,184.83	15,008,573.84	10,913,283.49	4,095,290.35	1,987,283.54	1,207,928.35
1881—January	16,291,307.87	360,688.98	15,930,618.89	11,672,583.61	4,258,035.28	1,876,526.50	931,818.71
February	17,355,485.31	391,616.47	16,936,868.84	12,029,594.35	4,934,274.49	1,823,713.46	781,745.93
March	18,488,476.94	432,304.19	18,056,172.75	13,099,262.44	4,956,910.31	2,222,812.39	1,116,695.11
April	19,560,752.23	517,422.38	19,043,329.85	13,846,285.20	5,197,044.65	2,182,636.96	1,183,779.02
May	20,591,177.33	640,662.03	19,950,455.30	14,608,124.70	5,342,330.60	2,278,582.78	1,356,688.23
June	21,397,698.53	756,412.85	20,641,285.68	14,738,828.77	5,902,456.91	2,318,445.18	1,545,448.13
July	21,982,161.42	774,402.94	21,207,758.48	15,150,267.23	6,057,131.25	2,396,472.50	1,756,044.15
August	22,474,105.51	800,343.43	21,673,762.18	15,240,553.15	6,433,209.03	2,527,888.69	2,013,844.67
September	22,727,740.61	820,434.43	21,907,306.18	15,626,283.11	6,281,023.07	2,233,085.37	1,900,251.83
October	23,212,951.99	801,243.43	22,431,708.56	16,408,030.46	6,023,678.10	2,452,428.66	1,803,052.62
November	23,303,782.34	746,980.08	22,556,744.26	16,407,354.48	6,149,389.78	1,995,895.38	1,742,462.86
December	23,862,966.20	775,000.00	23,087,966.20	16,496,380.40	6,234,291.37	2,255,252.50	1,696,068.64
1882—January	24,243,382.26	762,111.53	23,481,270.73	17,788,245.97	5,693,024.76	1,984,325.23	1,547,945.23
February	24,704,933.81	765,000.00	23,939,933.81	18,541,340.52	5,831,402.36	2,062,742.98	1,601,191.43
March	25,663,298.81	887,210.88	24,776,087.93	19,039,760.73	5,736,327.20	2,305,538.30	1,453,354.46
April	26,519,252.22	993,150.92	25,526,101.30	19,963,183.00	5,562,918.30	2,145,965.63	1,381,093.10
May	27,518,619.53	1,161,789.36	26,356,830.17	20,622,520.38	5,734,309.79	2,339,170.39	1,496,566.23
June	28,311,328.53	1,344,852.60	26,966,475.93	21,282,495.62	5,683,980.31	2,419,934.81	1,796,712.55
July	28,955,781.79	1,330,493.28	27,625,288.51	22,037,273.31	5,588,015.20	2,599,606.49	1,943,912.67
August	30,198,208.64	1,370,660.62	28,827,548.02	22,094,815.90	6,732,732.10	3,176,053.39	1,870,745.07
September	31,068,182.32	1,473,646.07	29,594,536.25	23,824,360.13	5,770,176.12	2,569,036.25	1,799,316.21
October	31,390,694.71	981,249.05	30,409,445.66	24,031,440.00	5,647,240.00	2,369,517.35	1,834,217.13
November	31,900,475.68	894,397.98	31,006,077.70	25,722,724.08	5,283,353.62	1,970,991.00	1,157,166.36
December	32,859,088.91	1,068,847.17	31,790,241.74	25,420,570.77	6,369,670.97	2,013,995.86	964,908.48
January, 1883	33,772,761.77	1,054,109.94	32,718,651.83	26,423,935.50	5,994,716.33	1,811,822.50	1,422,218.09
February	34,190,453.76	1,204,023.09	32,986,430.67	26,618,762.40	6,367,668.27	1,631,015.80	1,043,912.67
March	34,655,372.56	1,543,361.15	33,112,011.41	25,853,292.32	7,258,719.12	1,783,537.51	1,378,966.55
April	35,089,989.04	1,966,262.60	33,123,726.44	25,393,241.53	7,730,484.91	1,856,792.91	1,584,047.32

Table Showing Total Production of Crude Petroleum in Pennsylvania and New York Oil Fields, and Consumption—From 1859 to 1881, Inclusive.

Year.	Oil Creek Division. Bbls.	Pithole District Bbls.	Tid'ute and Fagundas District Bbls.	Central All'g'ny Divis'n. Bbls.	Butler, Armstr'g & Lower Allegany Bbls.	Clarion Division Bbls.	Bradford Division Bbls.	Bullion District Bbls.	Warr'n Div. Bbls.	Beaver Div. Bbls.	Alleg. Co., N. Y., Div. Bbls.	Yearly Total. All Districts. Bbls.	Con- sumption. Bbls.	Yearly Aver- age Price.
1859	2000	...	...	...	...	...	...	...	...	...	...	2000	500	20.00
1860	500000	...	...	...	...	...	...	...	...	...	...	500000	300500	9.60
1861	2113609	...	...	...	...	...	...	...	...	...	...	2113609	1280000	.49
1862	3056690	...	...	...	...	...	...	...	...	...	...	3056690	1472000	1.05
1863	2611309	...	...	...	...	...	...	...	...	...	...	2611309	1992800	3.15
1864	2216109	...	...	...	...	...	...	...	...	...	...	216109	1946620	9.87½
1865	1585200	912500	20500	...	...	...	...	...	...	...	...	2518200	2238610	6.59
1866	2302700	1095000	490000	...	...	...	...	...	...	...	...	3887700	2574401	3.74
1867	2393300	814000	839900	...	...	...	...	...	...	...	...	4047200	2960561	.41
1868	2672617	445500	729000	26000	...	...	...	...	...	...	...	3873117	3404645	3.62½
1869	3462500	365000	535000	22500	45000	...	...	...	...	...	...	4430000	3716341	5.63½
1870	2745528	173585	723838	713150	918644	...	...	...	...	...	...	5274745	4562642	3.89
1871	2040263	182054	697887	1083386	1091458	310293	...	...	...	...	...	5405341	5178038	4.34
1872	1429685	145065	847199	881140	2658080	829079	...	...	...	...	...	6790248	5954742	3.64
1873	1094389	119864	895983	851934	4402563	2526231	...	...	...	...	...	9890964	7847953	1.83
1874	734247	55770	373325	564978	5160265	3921267	...	...	...	...	...	10809852	7875145	1.17
1875	504639	35130	351407	343905	4712702	2821214	18509	...	...	...	...	8787506	9256416	1.35
1876	611884	37450	354284	333640	4755623	2377700	382768	64220	51337	...	...	8968906	10414877	2.56½
1877	734858	60380	312700	474262	5431072	3021120	1465451	1306342	151371	62085	...	13019641	11977107	2.42
1878	686948	60000	308780	363710	4552815	2276408	6482400	505265	108300	92490	...	15437116	13783672	1.19
1879	389400	36500	227900	258652	2876787	1438342	14268945	289591	45550	82100	...	19913767	16851222	.85½
1880	335342	36500	168542	166143	1737969	868984	22343202	146672	91655	102956	...	25997965	18228905	9.94½
1881	293504	31938	146474	145374	1394706	844442	22817975	128338	438000	102956	607106	26950813	21263740	.85½
Σ	34516721	4706236	7022719	6228774	38737684	21235080	67779250	2440428	886213	442587	607106	186502798	155081437	3.92½

RECAPITULATION.

Production by Fields.—1859 to 1881, Inclusive.

Oil Creek Division, including Shamburg, Pleasantville and Enterprise	34,516,821	Bullion Field.	2,440,428
Pithole Division, including Henderson, Morey and Ball Farms	4,706,236	Warren, Stoneham and Clarendon	886,213
Central Allegany, including Scrubgrass and West Hickory	6,228,774	Beaver (Smith's Ferry) Division	442,587
Butler and Armstrong Counties, Lower Allegany Division.. . . .	38,737,584	Allegany Division	607,106
Tideoute Division, including Economite, Henderson, Farms, etc.	7,022,719	Total, all Divisions, Production	186,502,798
Clarion County.	21,235,080	Total Consumption	155,181,437
Bradford Division, including Elk County	67,779,250	Difference,	31,421,361

This difference includes, of course, all available stocks on hand, all sediment and worthless surplus, and the amount estimated for shrinkage, which would reduce the available stocks to the figure given elsewhere.

This table is made to show the amount of oil saved and used. It differs but little with the first production table published in THE AGE, and was compiled by a producer who possesses valuable records.

Area of Developed Territory.

Venango County, Pa.	26,000 acres	Clarion County, Pa.	19,200 acres
Crawford County, Pa.	6,400 "	Butler County, Pa.	29,000 "
Forest County, Pa.	4,926 "	McKean and Cattaraugus.	65,800 "
Warren County, Pa.	11,500 "	Allegany.	19,260 "
Armstrong County, Pa.	5,120 "		
Total			184,200 acres.

This covers all territory productive, whether light or small, as yet discovered in the States of

Pennsylvania and New York.

The oil market never goes one way all the time. Some folks have learned this to their sorrow.

Vandergrift & Miller, on 740, Warren county, lines with Porcupine Run and Reed & Brenne- man. Its success is not assured nevertheless.

Only one well was completed on the great Quintuple tract during April, and that was a very small one. The glory of the Quintuple has begun to fade.

Whitney & Wheeler, who own the Dent lands, Lewis Run, are opening them slowly. There are 1,000 acres or more in the tract, but it is not all paying territory.

It certainly begins to look as if about all the spot of the Warren and Forest field had been discovered. In such an event, we may expect some very warm times in the oil market during the next three months.

THE SITUATION.

Oil affairs have reached a very interesting stage. It is sometimes a difficult matter to determine which is the stronger element of the trade, that which struggles for a lower order of values, or that which sheds its strength in forcing prices upward. On the one side there have been many powerful agencies which have acted in concert to oppose any movement looking toward improvement. These are, first, the heavy stocks carried by the Pipe Lines and speculators generally; second, the uncertain and threatening attitude of the Forest and Warren oil field, and third, the surprising manner in which the Pipe Lines manage to make a large showing of runs daily. It has been stated that these enormous runs are caused by the reduction of stocks at the wells, and, judging from the private reports, issued from month to month, by a few leading producers, this reduction is certainly correct. But in the face of this fact the runs continue large from month to month the year round. Where do they come from? In some instances private storage tanks have been emptied and the oil thus received falls naturally into the channel of "receipts," but when it does occur, unless it leaks out by or through the owner of such stocks, it is never divulged by the Line. By this method the dear people are kept quite in the dark as to what the actual production is and as to whither cometh the big runs that are recorded daily. Thirty-five million barrels of stocks make a good bundle to roll around and shift occasionally as may be necessary to suit the "cravings" of those who manipulate them. These constitute, in fact, the power which obstructs the upward movement, and they are exceedingly strong. But, notwithstanding, the trade seems to obtain a fair idea of the actual condition of things, and sometimes force the manipulators from their holes, though it requires a hard fight. On this side of the question there are a few facts, or at least allegations, with some degree of truth, that are difficult to overcome. Any one who will examine the record of Warren and Forest operations, elsewhere printed, will not fail to be convinced that at least a fair effort has been made to develop all there is of the district. The drill has been urged in nearly every quarter where there was any assurance that oil existed. What are the results? A pool of not only moderate dimensions, but limited as to supply, has been developed at the Cooper tract extension of the Sheffield pool; a narrow streak a few miles in

length, has been mapped out at Balltown, whose capacity to yield oil seems very uncertain, though by no means dangerous to the welfare of the trade. One more spot has been touched on lot 441, Warren county, which also commands the attention of the trade, and which is to form a factor of some significance in the future calculations of that end of the field. Wherever one well of good proportions as a producer is obtained, another, or, perhaps, many others, may be expected in close proximity. This is but a natural consequence, and a person that expects there is no oil in any given locality because one well happens to play-out quickly, is liable to be seriously mistaken. It will be so at the Brenne-man well. More oil exists in the latitude, and more wells will be obtained by drilling. The owners of the venture named are apparently of this opinion, as they are purchasing surrounding territory with a view to future operations.

But, perhaps, the most important venture of the present is the Vandergrift & Miller well, on lot 740, midway between the Brenne-man and the Porcupine development and perfectly lined with both. It approached sand on Saturday, the 19th inst., and to-day, the 21st inst., is not completed. Judging from the result of the Markham well, on 743, the chances would be against it, though the latter well was situated further to the west from the general belt line. The trade, however, has come to view the whole development as something of a fraud similar to Cherry Grove, and as a result, a vast improvement in values has transpired during the month. At the beginning the market was fluctuating in the neighborhood of 90c., and the facts above referred to having become pretty well established, speculators were seized with an "appetite" for crude oil not often experienced, and prices were forced up gradually to \$1.05 on Tuesday, the 15th inst. Since that time it has experienced the most violent fluctuations between \$1.00 and \$1.05. It seems that it possesses surely strength enough to maintain itself far above the dollar mark, though it is believed by a very large element that prices are far below the point where they should be, and that a boom much greater than any experienced since last November, is quite imminent. How true these calculations may prove to be is a matter for the future to decide. But, unless the developments in the new field assume a vastly more threatening attitude quickly, it can hardly be expected that a serious decline can take place immediately. On the other hand the striking of a large well in

some pool that might, or may exist beyond the confines of the present producing territory, would have the effect of tumbling prices materially. The question, therefore, for the trade to decide is whether there exists a possibility of such a consumation. The result of the so-called Gartland well on lot, or warrant, 3194, would seem to counteract any such possibility. This venture exerted a powerful influence over the market during the week ended the 19th. Its peculiar location, being so close to the producing pool, and yet so remote as to place it in the category of important tests, surrounded it with an unusual interest and significance. Had it resulted (as it did not) in a fair sized producer—one such as the Balltown pool proper is capable of furnishing—it is quite difficult to tell what the effects would have been. It is next to a failure, however, and consigns all the territory in the vicinity to the region of worthless. The disgusting and childish manner in which it has been manipulated, as a mystery, is well known to the trade. It sometimes appears singularly strange that “great” business men will engage in this questionable practice, simply to over-tax the energies and defeat the purposes of the regular scout. But, like many other follies of the age, general usage has made it somewhat popular with that class of producers who delight in playing smart tricks upon the trade and making money at other people’s expense. It is a privilege, however, that all enjoy and we presume as long as wildcats will be sunk the mystery business will continue.

Besides the Gartland venture, there are a few others in that region that command attention, but, at the present time, are not promising of dangerous results. The most important of these, perhaps, is the Vandergrift & Miller, on lot 740, above referred to. The others are those of Dimick, northeast of Sheffield two miles, and the Glatzan, one mile northwest of the old Barnsville gasser. Both these latter are supposed to have passed the vital spot without finding grease. They, however, have not been abandoned, and until they are they will continue to act as moderators of values, as they are shrouded with more or less danger. These are the principal points to be feared at present in that field, and they certainly are not of sufficient magnitude to cause great alarm. The Balltown pool seems quite well defined. During the month several attempts were made to extend the limits without avail. Book & Grace “jumped” the county six or eight miles and

drilled a test, on the supposed line, a short distance southeast of Tionesta, which proved the fact that no sand rock of an oily character existed. The result of the Grandin No 7, the farthest southwest on the end of the Balltown pool, is a light affair, and all new wells within the limits of the producing area drops very rapidly in a short time, proving to the satisfaction of every body, that the whole region will be exceedingly shortlived. Under such circumstances, therefore, it is not a matter of great astonishment that the trade possesses a large number of bulls. The old districts are gradually sinking and must shortly decline so that the depreciation will be seriously felt.

The runs for the month of April, for all lines, were 2,076,215.51 barrels and the shipments for the same 1,915,420 barrels, showing an excess of runs of 1,908,378.91 barrels for the whole period. Notwithstanding this, the total stocks in the Pipe Lines were reduced some 90,000 barrels, which was owing to the discovery of a greater amount of sediment and worthless oil than they had estimated. The total exports for the month were ----- barrels. From all, therefore, that can be gathered at present, the outlook for the public is quite encouraging. It is not, however, such as will warrant the speedy return of \$2 oil. As soon as the United Pipe Line cease to erect 35,000 barrel storage tanks, and stocks are drawn upon, such an advance is certainly among the possibilities of the future, but until then, if the bottom could be kept in the neighborhood of one dollar, producers should be satisfied. It is true it cannot be produced at the present time for less than a dollar a barrel, for the sections which now furnish drillable territory are vastly more difficult of access, and, therefore, very much more expensive to operate. The fields, as they were on the 15th inst., were producing as follows:

DISTRICT.	PRODUCTION.
Bradford	32,900
Alleghany	10,120
Warren and Forest	7,600
Lower Country	7,300
Total	57,920

The addition to the Bradford Oil Exchange is being rapidly put in shape. Meanwhile the Exchange is very comfortably situated in Orpheus Hall, Boylston street.

A delegation of gas engineers visited this city on Wednesday, the 23d inst.

CRUDE OIL MARKET.

MONTHLY AND YEARLY AVERAGE PRICE OF PIPE LINE CERTIFICATES OR CRUDE OIL AT THE WELLS, IN BARRELS OF 42 GALLONS EACH.

A. D.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	D'emb'r	Yearly
	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Ave'age	Av'ges.
1859.									20.00	20.00	20.00	20.00	20.
1860.	19.25	18.00	12.62½	11.00	10.00	9.50	8.62½	7.50	6.62½	5.50	2.75	2.75	9.
1861.	1.00	1.00	1.00	.62½	.50	.50	.50	.25	.20	.10	.10	.10	.
1862. . . . .	.10	.15	.22½	.50	.85	1.00	1.25	1.25	1.25	1.75	2.25	2.25	1.
1863.	2.25	2.50	2.62½	2.87½	3.00	3.25	3.37½	3.50	3.75	3.85	3.95	3.95	3.
1864.	4.09	4.37½	5.50	6.56	6.87½	9.50	12.12½	10.12½	8.87½	7.75	10.00	11.00	9.15½
1865.	8.25	7.50	6.00	6.00	7.37½	5.62½	5.12½	4.62½	6.75	8.12½	7.25	6.50	6.87
1866.	4.50	4.40	3.75	3.95	4.50	3.87½	3.00	3.75	4.50	3.39	3.10	2.12½	3.59
1867.	1.87½	1.85	1.75	2.07½	2.35	1.90	2.62½	3.15	3.40	3.55	2.50	1.87½	2.74
1868.	1.95	2.00	2.55	2.82	3.75	4.50	5.12½	4.57½	4.00	4.12½	3.75	4.35	3.41½
1859.	5.75	6.95	6.00	5.70½	5.35	4.95	5.37½	5.57½	5.50	5.50	5.80	5.12m	5.63¾
1870.	4.52½	4.52½	4.45	4.22½	4.40	4.17½	3.77½	3.15	3.25	3.27½	3.22½	3.40	3.89
1871.	3.82½	4.38	4.25	4.01	4.60	3.85½	4.79	4.66	4.65	4.82½	4.25	4.00	4.34
1872.	4.92½	3.80	3.72½	3.52½	3.80	3.85	3.80	3.58½	3.25	3.15	3.83½	3.32½	3.64
1873.	2.60	2.20	2.12½	2.30	2.47½	2.22½	2.00	1.42½	1.15	1.20	1.25	1.00	1.83
1874.	1.20	1.40	1.60	1.90	1.62½	1.32½	1.02½	.95	.95	.85	.55	.61½	1.17
1875.	1.03	1.52½	1.75	1.36½	1.40	1.26½	1.09	1.13	1.33	1.32½	1.44	1.55	1.35
1876.	1.80	2.00	2.01	2.02¼	1.90½	2.01¾	2.24½	2.71	3.81	3.37½	3.11	3.73	2.56¼
1877.	3.53¼	2.70	2.67½	2.58	2.24	1.94¾	2.07½	2.51	2.38	2.56¾	1.91	1.80	2.42
1878.	1.43	1.65¼	1.59	1.37½	1.35¼	1.14	.98¾	1.01¾	.86½	.82½	.89¾	1.16	1.19
1879.	1.03	.98	.86¼	.78½	.76	.68¾	.69¾	.67¾	.69½	.88½	1.05¾	1.18½	.85¾
1880.	1.10¼	1.03½	.88¼	.78	.80	1.00	1.06¼	.91	.96	.96¾	.91¾	.91¾	.94½
1881. . . . .	.95½	.90¾	.83¾	.86¾	.81¾	.81¼	.76¾	.78¾	93.3-16	.94¾	.83	.84	.85¾
1882. . . . .	.83¼	.85¾	.80¾	.78½	.69¾	.54½	.56¾	.58¾	.74½	.94	1.27½	.94¾	.79¾
1883. . . . .	.91¼	.96¾	.97½	.92¾									

PRODUCTION TABLE.

SHOWING THE TOTAL DAILY NET YIELD OF THE PENNSYLVANIA OIL FIELD FROM SEPTEMBER, 1859, TO NOVEMBER 30th, 1882, IN BARRELS OF 42 GALLONS EACH.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals.
1859									10	15	18	28	2,173
1860	30	50	89	215	500	1,000	2,000	2,500	3,000	3,500	2,000	3,000	547,439
1861	3,201	4,041	4,800	5,400	6,000	6,100	7,100	8,500	7,000	5,150	5,514	6,716	2,119,045
1862	6,000	5,300	7,400	8,000	9,400	9,000	8,500	11,000	13,000	10,565	8,053	7,238	3,153,183
1863	6,200	6,400	7,000	5,500	6,000	7,603	7,022	8,100	9,200	7,120	9,500	10,260	2,667,543
1864	8,100	6,300	4,500	5,000	7,000	5,100	5,600	5,700	7,180	5,545	10,100	10,320	2,215,150
1865	5,900	5,800	5,000	7,500	8,000	8,000	7,400	6,350	6,400	6,800	7,600	9,350	2,560,200
1866	9,200	9,100	5,000	7,100	8,100	9,500	9,350	9,440	12,000	10,400	11,000	11,165	3,385,105
1867	10,900	8,100	9,000	10,100	10,500	9,000	10,100	10,000	10,100	7,660	9,155	8,313	3,458,113
1868	8,200	9,400	8,100	9,300	11,000	12,400	13,000	11,800	10,250	8,225	7,580	7,150	3,540,670
1869	8,100	8,500	10,000	11,000	13,000	13,000	13,560	13,000	13,500	12,500	11,200	10,625	4,186,475
1870	11,348	11,802	11,509	12,400	15,990	13,400	13,800	15,950	18,203	18,000	17,061	15,990	5,308,046
1871	13,500	13,300	13,082	12,950	13,054	13,882	14,900	15,866	15,555	15,889	15,599	15,841	5,278,072
1872	17,943	17,894	15,680	16,221	17,402	12,140	16,933	17,440	16,598	18,450	25,942	20,630	6,505,774
1873	20,550	21,460	21,830	22,260	24,632	26,361	23,406	30,900	32,500	31,343	33,584	34,680	9,849,508
1874	32,800	30,940	29,760	28,104	29,442	31,222	33,987	32,000	29,461	29,944	29,231	28,101	11,102,114
1875	27,900	26,509	26,012	23,009	23,000	23,805	24,991	23,940	23,800	23,900	23,821	23,594	8,948,749
1876	23,102	25,440	13,560	23,800	24,628	24,400	24,890	25,300	25,900	26,400	26,500	25,900	9,142,940
1877	26,930	27,560	28,860	32,060	36,000	37,440	39,210	42,100	41,321	41,200	39,900	40,120	13,230,330
1878	39,200	39,900	39,200	40,100	41,111	40,820	41,200	42,900	43,999	44,480	45,200	43,900	15,272,491
1879	44,000	43,830	47,960	50,810	52,911	55,600	56,911	59,940	61,498	60,980	58,750	58,231	19,835,903
1880	59,982	63,890	66,215	68,063	72,080	73,104	73,794	74,980	71,941	77,491	76,112	74,080	26,086,692
1881	73,030	69,060	73,900	75,245	79,000	82,460	81,900	79,100	78,231	77,971	77,892	76,642	28,136,353
1882	75,028	74,910	74,751	76,690	78,601	80,469	90,020	98,739	79,685	72,805	59,513	66,980	28,452,834
1883.....	62,600	59,104	58,883	57,900									
Total twenty-four years to December 31st, 1882													215,984,901
Average per day for twenty-four years.....													24,541
Average per day for 1882.....													77,950

The Oil Tax bill, which the scrubs of the Pennsylvania Senate attempted, was killed by the intelligence of the House on Wednesday, the 23d inst. "Death" did an act of justice that time.

The Petroleum Producers' Exchange, of Bradford, will commence the erection of a brick edifice about the first of June, to cost over \$30,000 00.

Back numbers of THE AGE can be obtained by those desiring them on application at this office

WELLS COMPLETED.

TOTAL NUMBER OF WELLS COMPLETED EACH MONTH IN THE YEARS NAMED.

A. D.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1870	131	131	114	135	164	182	161	156	135	144	112	79	1,644
1871	98	68	70	81	95	150	139	116	125	180	161	181	1,470
1872	48	118	98	122	130	98	131	117	96	101	41	101	1,201
1873	100	105	105	110	106	180	112	116	116	111	108	95	1,364
1874	108	111	108	110	112	113	124	102	108	117	112	116	1,341
1875	184	186	194	180	169	194	208	206	208	215	213	228	2,385
1876	235	236	248	207	200	258	243	274	223	270	278	271	2,943
1877	275	249	296	264	336	598	314	254	332	460	398	391	4,167
1878	279	238	202	411	468	278	210	180	176	232	241	160	3,075
1879	144	136	221	263	395	336	335	280	269	229	225	268	3,101
1880	311	238	358	494	435	315	339	359	359	360	334	309	4,211
1881	232	218	201	310	412	371	348	335	314	302	347	405	3,795
1882	357	359	389	449	457	328	188	248	169	116	150	122	3,332
1883	125	131	141	212									

Total for 13 years ended December 31st, 1882 34,029

THE ALLEGANY FIELD.

TABLE SHOWING THE PROGRESS OF DEVELOPMENTS
AND PRODUCTION OF THE ALLEGANY (N. Y.)
OIL FIELD.

MONTH.	No. of wells com- pleted.	Dry.	Production, bbls., of new wells.	Average per well.	Average daily Pro- duction of Field, Bbls.	Drilling.	Rigs.	Stocks in wooden tanks, Bbls.	Stocks in Iron tanks, Bbls.
Total, 1880	8	42	76	9½	76	4	6	. . .	. . .
Jan'y, '81,	4	2	18	9	94	4	5	. . .	. . .
February	4	1	24	6	112	4	8	. . .	. . .
March	5	2	60	12	162	4	7	. . .	. . .
April . .	3	1	20	10	170	5	6	. . .	. . .
May . .	4	1	48	12	212	20	21	. . .	. . .
June . .	14	8	130	9¼	327	24	35	. . .	. . .
July . .	22	5	275	12½	588	47	57	. . .	. . .
August .	53	17	586	11	1080	62	68	. . .	. . .
September	63	11	910	14½	1740	105	118	. . .	. . .
October .	96	5	1432	15	2896	164	198	38000	108891
November	154	10	2732	17½	5180	155	200	84666	142216
December	196	2	5115	26½	8937	187	204	180200	169250
Jan. 31, '82,	162	2	3914	24½	11123	191	209	270860	243147
Feb. 28th	189	4	4154	21.97	13200	212	201	373460	258247
March 31st	216	2	5580	25.83	16000	215	221	374490	359347
April 30th	257	6	6356	24¾	20760	226	230	400000	417347
May . .	265	7	5992	22½	22438	179	191	440000	542347
June . .	163	11	3605	12	22220	94	153	475000	650000
July . .	81	. .	1488	18½	19391	45	123	375000	550000
August .	60	6	1199	20	17650	34	98	295927	550000
September	29	3	435	15	16320	39	58	275610	540000
October .	45	3	660	4½	14802	70	51	. . .	. . .
Nov. . .	75	7	983	13½	12900	67	82		
Dec. . .	63	2	722	11½	11600	54	66		
Jan. 31, '83,	60	6	703	11½	11900	60	60	250000	
Feb. 28 . .	67	12	804	12	11100	64	70	200000	
Mar. 31 . .	71	0	937	13¼	11000	81	110	176000	
April 30 . .	95	4	1152	12½	10400	94	61	159000	

The Vandergrift & Miller well, on lot 740, Warren county, was reported a failure on Thursday last, and the shorts in the market were driven in to purchase, sending the market from 100¾c, where it closed on Wednesday, up to 103¾c, closing firm at that figure. The advance was a complete surprise to the whole trade, the greater part of which had its cap set

for a 97c market within a few days. Speculation is pushing matters around in a most alarming manner, but fluctuations are doubtless small when compared with what are to come in the future. The producing fields are just now passing from the higher to the lower order as regards production. That is, the yield is again sinking, and, unless some greater deposit than any at present known is very soon discovered, there is no possible reason for prices remaining even as low as one dollar a barrel.

United and Tide-Water certificates are beyond question, as fine collateral for loans as could be obtained. In the oil regions, especially, they are taken at a valuation as near the market quotation for the same as possible fluctuations will admit, and are then as good as government bonds. The United Line, which transacts nearly ninety per cent. of the transportation, business has so systematized its mode of issue that it is next to impossible for an error to occur, and utterly impossible for an over issue to be made, by those in charge, without detection.

The demand for American petroleum continues to increase all over the world, the sickly attempt of Russia to compete to the contrary, notwithstanding.

The Oil report for the month of May will be very bullish in tone. The Forest and Warren county field are not panning out as hugely as expected.

L. Emery, Jr. & Co., the great oil well supply men, of Bradford, carry a stock in this city, aside from the other establishments in other towns surrounding, of nearly \$200,000.

SHIPMENTS.

Shipments of Crude and Refined, in Barrels of 42 Gallons each, reduced to Crude Equivalent out of the Producing Regions in the years named

YEAR.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals.
1859	1,700
1860	...	1,200	2,500	4,640	11,000	21,000	58,500	64,300	79,000	78,400	63,400	38,400	423,240
1861	...	49,620	68,410	95,300	184,000	189,000	200,400	210,000	263,000	184,000	76,321	75,282	1,650,133
1862	...	93,101	103,762	201,430	256,320	385,211	375,440	376,311	401,210	406,500	213,611	190,463	3,141,521
1863	...	104,928	148,388	288,994	456,211	428,282	213,413	281,400	398,211	264,441	281,340	206,211	3,242,951
1864	...	101,431	96,486	132,486	125,218	221,386	110,490	101,218	228,430	220,386	201,441	154,765	1,842,001
1865	...	94,803	103,201	122,222	140,301	338,403	184,231	115,821	231,402	228,321	215,262	204,779	2,100,132
1866	...	121,320	180,206	260,231	280,320	390,260	200,410	290,210	390,431	318,616	210,016	236,701	3,010,921
1867	...	125,321	165,230	250,830	300,210	360,311	210,410	260,310	384,206	300,102	280,013	132,807	2,883,210
1868	...	144,201	200,410	280,430	310,408	400,046	390,402	320,210	480,306	260,240	280,260	265,377	3,482,510
1869	...	200,026	240,210	260,406	340,318	400,601	310,260	250,214	450,200	480,860	280,210	249,896	3,623,521
1870	...	360,933	354,400	390,003	407,908	418,516	410,707	516,679	542,217	557,624	519,780	444,254	5,235,931
1871	...	347,718	383,890	389,147	587,375	501,754	541,137	528,134	551,075	505,071	480,977	410,822	5,664,791
1872	...	476,966	276,220	428,512	510,417	529,228	591,238	621,954	541,607	607,468	959,589	955,443	5,899,942
1873	...	527,440	668,374	708,191	768,176	696,414	814,449	864,768	952,955	1,010,852	546,117	602,348	9,499,775
1874	...	501,220	518,246	803,409	899,027	815,413	940,281	793,805	1,014,570	543,341	671,066	871,902	8,821,500
1875	...	327,776	693,918	729,581	681,679	745,986	904,537	882,089	1,109,392	871,917	871,066	871,902	8,924,938
1876	...	519,193	623,762	603,037	646,150	921,862	1,228,530	1,203,402	1,154,549	524,190	871,496	1,190,983	10,164,443
1877	...	484,904	913,919	903,526	1,234,324	1,391,124	1,096,951	1,425,943	1,563,797	1,268,971	1,205,634	600,019	12,832,578
1878	...	774,234	741,512	846,636	960,804	1,135,119	1,330,454	1,655,651	1,434,225	1,747,390	1,281,410	992,688	13,476,000
1879	...	702,729	973,879	1,136,188	1,331,469	1,369,314	1,625,035	1,808,238	1,627,120	1,662,269	1,453,645	1,542,585	15,896,469
1880	...	1,395,151	1,613,371	842,268	1,095,259	975,083	1,231,611	1,304,129	1,252,635	1,665,933	1,226,030	1,335,613	15,587,447
1881	...	915,028	1,276,740	1,348,398	1,563,436	1,729,697	1,925,532	2,214,877	2,031,950	2,080,467	2,069,641	2,014,655	20,232,038
1882	...	1,829,779	1,729,237	1,751,294	1,843,455	2,261,172	2,239,591	2,078,903	2,003,184	2,092,677	1,406,880	1,140,462	22,192,024
1883	1,369,010	1,241,871	1,643,477	1,915,420									

The total quantity of petroleum (crude equivalent) exported from the United States from January 1 to May 12 was 204,048,279 gallons, against 206,607,591 gallons in a like period of 1882, a decreased exportation of but 2,559,312 gallons, against a decrease of 6,532,889 gallons reported up to May 4. For the week ending May 12, the foreign shipments were 14,164,820 gallons, against 25,767,796 gallons in the preceding week. New York City's exports of petroleum from January 1 to May 12 amounted to 173,759,909 gallons (leaving but 30,288,370 gallons for all other ports, against 38,248,962 in

a like period last year), against 168,358,629 gallons in a like period in 1882.

The chapter on Petroleum in this AGE is chiefly devoted to the Press of the region. It will be seen that there has been no lack of this instrument for the enlightenment of the populace. It is said to be a fact, that in no other part of the universe, of similar area, do the people "consume" as much literature. Many of the men who pump wells in this country can read the most ancient productions in the original, and speak any language worth speaking, fluently,

The mania for speculation in oil has so demoralized the people of the oil region that much suffering and want have been experienced thereby. Money, which creditors should have, is invested in hope of making a "strike" before it is paid out. To such an extent is this thing conducted, that, not infrequently, watches and other specimens of the people's adornments are pledged for small sums to be thus used. Meanwhile those engaged in legitimate business, to whom it rightly belongs, are compelled to beg, borrow, or steal sufficient to keep moving. When will this thing cease and solid sense seize the people for a season?

THE PETROLEUM AGE.

VOL. II.

BRADFORD, PA., JUNE, 1883.

No. 6

PETROLEUM.

CHAPTER XVI.

Progress of Operations During the Centennial Year—The Early Adventures of Clarion and Bullion—The Old Settlers and Producers—Great Oil Fires—Exciting Scenes and Destruction of Property, Etc.

THE centennial year favored the oil trade to a remarkable degree. For four years previous it had labored with low prices and over-production until producers became exhausted and began to withdraw from the business altogether. This seems quite strange when the fact is known that the average price of crude for the entire year of 1875 was \$1.35, of 1874 \$1.17, and 1873 \$1.83. But, of course, at that time operating was not reduced to the science which later years developed, and was, therefore, much more expensive. Again, producers were not satisfied unless a fortune dawned upon them during the first year's experience. In any other following, business men are content to await the return of many years for the assurance of riches, but here it is desired and sought in a few months, and sometimes won it is true. The great majority of those engaged, however, remain in close connection to poverty from year to year, and some who have struggled with all the energy and power they possessed, have been unable to achieve the victory aimed at. Many of this class are among the brightest and most substantial citizens of the region, but the goddess of "greasian" fortune seems not yet to have looked with favor upon their efforts. Thus the years have rolled away, having enriched the few, even in this country of supposed great wealth, while the many have endured the pangs of disappointment, bordering, in many cases, upon distress. The year 1876 was an exception to many that preceded it in this regard, however. Prices were better the whole year round than they had been for the four years previous, making a grand average of \$2.56 a barrel. In the producing fields there was considerable activity, though nothing of a very important character was developed. In

the Clarion district operations were extended northeastward bringing the Turkey City and Edenburg sections into notice, and opening quite an extensive area which, however, was not of an extraordinary productive type. It was substantial, nevertheless, and rewarded producers fully as well as any other field which had been opened up to that time. The country was easily accessible, being more of the undulating character than was usual in the oil producing regions. The sand, or oil formation was clear and nearly white and somewhat more compact than that of Butler county and contained less oil to the square acre.

The old inhabitants were mostly Dutch, speaking the mother-tongue, though in some instances born on the spot where their locks become "pale." The oil excitement seemed to take with them much better than the inhabitants of other sections, for fewer of them sold out and departed to other places to reside than any other county in the State where oil had been found, and, moreover, a greater number of them actually engaged in the oil producing business than was usual up to that time. They invited the operator, and, as a consequence, operations speed with great rapidity, enlarging the area of producing territory far beyond the anticipation of the most learned in oil affairs. Butler and Armstrong, which, from 1869, had occupied the attention of the trade, found in Clarion a great competitor for first honors. When fully developed the area which yielded the precious liquid in the former contained in the aggregate about 30,000 acres, while the latter alone contained 21,500 acres. Clarion county, from the earliest oil excitement, presented charms to the prospectors. Many test wells were drilled in various parts, but all proved failures, either because they were located beyond the limits of the oil rock, or because they were not drilled to a sufficient depth. In one instance Chandler and others sunk a well to the depth of 600 feet, on the Black farm, between Shippenville and Elk City, in 1866. The well was then abandoned as a dry hole, and the fact was that it was located within a few rods of the centre of the belt, and would have, probably,

proven a paying institution had it been drilled to the proper depth and managed with skill. But this was not the only instance of this character on record. Leases were obtained and wells sunk in close proximity to every productive field that now exists, long before they were developed, in some cases coming so very close to the richest deposits as to actually obtain a "taste" of crude. This was true of the Bullion pool, which came into notice the latter part of 1876. Years prior to that Jonathan Watson, of Titusville, drilled a test well on the east side of the pool, not to exceed half a mile, air line, from the Big Indian well, which, in the spring of 1877, yielded 3400 barrels in a day. Then, furthermore, the Phillips brothers, who had kept their eyes open for a belt to extend southwestward from the Foster, Milton and Reno deposits, drilled several wells on a branch of Scrubgrass creek, before they found the treasure, each successive venture being located a little further eastward, until success crowned their efforts. It requires considerable pluck and energy, and genuine grit to pursue such a policy, but of all men in existence, the average oil men contain a superabundance of these ingredients. He will venture \$3,000 on a chance where an ordinary mortal would not think of venturing \$300. It is a part of his nature to hazard part of his substance and, not infrequently, the whole of it. It is by such means the country has become so thoroughly developed, as it appears at the present day.

In Butler county, 1876 witnessed but little change in the general appearance or area of producing territory. In the vicinity of St. Joe, however, and Carbon Centre, considerable activity prevailed, and some very fine wells were obtained. The oil was, in a large measure, conducted to Dilks Station, on the Butler branch of the West Penn Railroad, where the Union Pipe Line had established a station. Here a large number of iron storage tanks were erected, partly by the Pipe Line and partly by private individuals. At this point, during the month of June, one of the largest oil fires ever witnessed occurred. It originated through the agency of lightning, which fired one of the tanks, and this being in close proximity to a group of four, the whole bundle, in rapid succession, after the first overflow of the original, ignited. There, in one group, were the contents of four 30000 barrel tanks passing heavenward in huge volumes of fire and ending in great columns of black smoke, which formed an arch,

in the form of a rainbow, from the tanks to the horizon eastward. People from all parts of the country, even to Pittsburgh, came to witness the grand spectacle. It was a most beautiful day following the stormy night, which gave a pleasant opportunity of beholding some of the eccentricities of petroleum constituents. When these tanks are fired they usually burn for about twelve hours in an apparently quiet condition, except the casting up of enormous columns of fire and smoke. At the end of that time an overflow occurs, which constitutes one of the grandest and most interesting scenes the human eye can witness. Sometimes a thousand barrels of oil, and perhaps more—as no one has been able to calculate it—are forced up and out over the edge of the tank in a sparkling, seething, flaming, smoking condition, giving the astonished observer a full, literal view of the boiling process pursued in the Hades, of the early orthodox "nation." This interesting overflow is caused, no doubt, by the action of the heat upon the lower "stratum" of oil and upon the tank itself, which finally creates a vacuum filled with vicious gasses that must expend their force, and this is accomplished by the elevation of the oil above and the consequent result described. But few, perhaps none, who have not witnessed such exhibitions, have any approximate idea of the grandeur of the display. One stands in perfect awe of the terrible scene and feels himself an insignificant and helpless creature in such a mighty presence.

Another scene, of this description, which can never be expunged from the memory of the individual fortunate enough to have witnessed it, occurred in the summer of 1876 at the Troutman farm, Butler county. During the progress of a thunder shower, quite late in the evening, lightning ignited the oil in a 25,000 barrel tank which stood on the low lands immediately south of the group of dwellings and what was termed the village of Troutman. The course of the small stream or creek near the banks of which the tank stood, was northward, passing through the center of the village. The flat on all sides was covered with derricks, extending to Ralston's mill, a mile north. The burning oil, as it floated down the little stream, of course, fired everything that was combustible, among which were numerous oil rigs. At one of these, the excessive heat from the burning oil caused the explosion of a boiler by the too rapid expansion of the steam. The boiler happened to be standing in position to point directly toward a second

tank that stood in close proximity to the one ignited. The force of the explosion drove it from its position with such power that it was driven almost bodily through the side of the tank and below the center rim. The reader can imagine at least a part of the result of this catastrophe, if it may be so termed. The contents went rolling down the little stream and over the flat ground like a huge river in a blaze of fire. Dwellings, shops, stores, derricks, tanks, and in fact everything of a combustible character which it encountered, for the distance of a mile or more, fell a prey to the devouring proclivities of this raging element. It was now becoming dark and to the spectator who stood upon the hillside (for the valley was hemmed in on both sides by very elevated hills, or what are termed in the Oil Regions "mountains,") and gazed down upon that valley of destruction and fire, was granted a spectacle for what might be designed as awful splendor, beheld but once in the average lifetime of man. The roaring of the flames and the crackling of the embers mingled with the shouts of men, women and children, fleeing for life and struggling to save at least a portion of their possessions, combined to constitute a pandemonium in full blast, and in all respects equal to that represented by the supposed spiritual enemy of the human race. The night was dark, but the light of the valley of fire penetrated the clouds so that the heavens were visible and the stars reflected their twinkling lights in apparent peaceful repose to the moanings of the destructive elements below.

But of this class of fires that have occurred throughout the Oil Regions, and their terrible results, a book of some magnitude might be written. Millions of barrels of oil have been consumed in this manner from year to year, but late seasons have not witnessed such enormous conflagrations nor so many of them. This satisfactory result has been achieved by replacing wood with iron topped tanks. In most cases the iron has served as a conductor of the lightning, whereas the wood performed the functions of conductor and the "play-ground" of the destructive force, which seemed to center about these receptacles to an alarming degree. There is an apparent affinity existing between the gasses surrounding them and the electric agency and the consequence is, during all heavy rain-falls, which are accompanied by thunder and sharp lightning, tank explosions are looked for. In many cases, even in these latter days, expectations are fully realized. None of the tanks

are now permitted to overflow, however, as the system of shooting them below the center, with small cannon, by which the oil is permitted to escape and burn on the ground, prevents it, and much damage, that might result, is also thereby avoided. Of course, as these tanks multiply throughout the country, the chances of being struck by lightning also increased.

In one place, near the village of Olean, N. Y., more than one hundred of these enormous "tubs" have been erected during the past two years, forming a city of their own, and a display of "iron architecture" that astonishes the gaze of the verdant tourist.

But of these things more will be said in future chapters. We are drawing to the time in the history of the business that becomes interesting as the events have been of the most exciting as well as peculiar character. The great Northern or Bradford District, began to be developed during 1876, so that it was known to a certainty that oil could be produced in paying quantities and operators from the Lower fields began to give it attention. The operations thus far had been confined to the Tuna valley from Limestone, N. Y., to Bradford, a distance of six miles. Limestone had the honor and Joseph Moses, Esq., the credit of having the first producing well in the district. This was sunk many years prior to the date of which we write, but it led to the search made by other parties and the final development of the richest and largest producing field ever discovered. During the summer many of those who are now representative men, not only in the field, but the trade, laid the foundation of future fortunes by securing lands at low rates. In some cases territory was purchased outright at from \$6 to \$10 per acre and was afterwards sold as high as \$500 per acre. The Enterprise Transit Co., represented by Mr. John Brown had a large tract, and, of course, are beyond the limits of want in the life they now live. L. Emery, Jr., Whitney & Wheeler, Marcus Hulings and others might be named.

(To Be Continued.)

We cannot see any reason why the Petroleum industry will not within the ensuing ten years become the leading one of this country. By that time the United States alone should utilize at least 80,000 barrels of the product, and doubtless it will be fully supplied. The deposits have not all been discovered yet.

The age of reason and the age of Petroleum do not appear to be contemporaneous.

RUSSIAN PETROLEUM.

The American petroleum trade will be interested to learn that Baku, on the west shore of the Caspian Sea, has finally obtained a direct connection with Moscow by rail. A correspondent of the *London Daily News*, writing from "Baku on the Caspian," May 5th, sends that journal a lengthy account of the initial journey over the Caspian Railway from Tiflis, the capital of Trans-Caucasia (360 miles), to Baku. The latter city had previously shipped its refined oil north on the Caspian Sea in tank-boats, as it still does. These ascend the Volga and connect by rail lines to various parts of the empire. Last fall a line of rail from Poti, on the east shore of the Black Sea, was completed across the Caucasian isthmus to Baku, by which considerable oil has gone west to Poti, and thence by vessel to Hungary, Turkey, or through the Dardanelles to Italy. As pointed out by a correspondent of *Bradstreet's* some months ago, this Russian oil is being more largely used, not only in Russia, but in Germany, Austria and Turkey, than formerly. The fact, as alleged, that it is inferior when refined to American in the proportion of about 3 to 5, can hardly be expected to exert a great influence against it in its own markets, considering its cheapness and the less fastidious requirements of the mass of the population there. Recent consular reports received at Washington have already told of the new use of Russian Petroleum—that of adulterating American oils, which are then sold in Russia, Germany, and elsewhere as pure American. It is easy to perceive why our petroleum exporters do not see anything threatening in the immediate future of the Russian (or Hungarian) petroleum-producing regions, and it is unquestionably to be explained by the fact that the foreign demand, as a whole, has continued to grow, despite reports of increased foreign production and shipments, and in view of the additional fact that our exports to Russia, while not large, have actually been increasing. They were in the fiscal years ended June 30:

	1882.	1881.	1880.
Refined Oil gals.	2,862,666	1,320,083	1,654,730
Naphtha "	49,850	78,757	54,587
Totals	2,912,515	1,407,840	1,709,317

But these figures, while they suggest the continued growth of this export trade to Russia, are likely to be deluding in that no account is made of the relatively greater growth in the use of petroleum in that portion of the globe than our increased exports explain. The correspondent of the English journal named says that he

found the petroleum regions at or near Baku very prolific. The soil actually oozes with the greasy product, is putty-like to the touch, and little rills of the stuff are seeking the lowest levels in all directions. The surface of the country is spiked with chimney-like towers (instead of derricks), up which flows the oil, whence it runs through pipes (as with us) to reservoirs near the refineries, a short distance away on the shores of the Caspian. On the question of the productivity of these "mines," as the correspondent prefers to call them, "they can produce enough oil to light the whole of Asia, and that the Russians are doing their utmost to beat the Americans in the markets of the Old World. But even the Russians do not always hit the mark, or only succeed in doing so by a happy chance or after long and patient trial." With a sense of thrift it is added that "a nice little contract" awaits some ironmaster in England, or Belgium, as the principal oilmaster in Oleopolis is asking the Russian government for permission—which no doubt he will obtain—to lay down lines of pipes all the way from Baku, on the Caspian, to Batoum, on the Black sea, a distance of some 460 miles. This completed, and a heretofore expensive freight tariff will be in part removed, which will renew the interest in Austria and Germany in Russian petroleum as against that from Hungary and elsewhere. The total yield of petroleum at Oleopolis, near Baku, however, is given at about 20,000,000 poods, which will hardly warrant the statement as to the capacity of some of the wells there for "lighting all Asia." At the outside the 20,000,000 poods equal but two months' production in the Pennsylvania regions.

The Dupher well, south-west of developments in the Balltown section, is an important venture, and will be used for all there is in it to work the oil market. If it should prove to be a gusher similar to the Grandin No. 9 there would be a tumbling of prices to the dollar point in great haste. It is hardly probable, however, that the venture will ever produce sufficient crude to grease itself.

The actual excess of runs over shipments for the month of May was 88,334 barrels, but the total stocks in all lines were increased 141,385 barrels. This apparent discrepancy is accounted for by the change of base in the condition of the "sediment and surplus" department of the United Pipe Line.

RUNS, DELIVERIES, STOCKS.

TABLE showing the April and May Pipe Line runs and shipments, with stocks on May 31st, 1883—official. Each barrel 42 gallons:

DISTRICT.	PIPE.	RECEIPTS, Barrels. April.	Barrels. May.
Bradford	United		
Tidiotte & Titusville	"		
Lower Gountry	"		
Monongahela	"		
Total		1,856,792 91	1,825,252 60
Bradford	Tidewater	205,595 85	245,594 24
Titusville	Octave Oil Co.	3,948 80	3,700 00
Oil City	Charley Run	116 81	116 81
Shaffer	Shaffer Run	683 75	
Franklin	Franklin Pipe	9,077 45	7,406 24
Total all Lines		2,076,215 51	2,082,099 89
Average per day, May 1883			67,164 51
Average per day, April, 1883			69,207 18
Average per day, March, 1883			64,404 04
Average per day, February, 1883			63,208 21
Average per day, January, 1883			65,124 94
Average per day, December, 1882			72,413 59
Average per day, November			73,098 09
Average per day, October			85,227 28
Average per day, September			96,079 64
Average per day, August			111,243 38
Average per day, July			95,192 11
Average per day, June			95,522 95
Average per day, May			85,563 08
Average per day, April			80,093 79
Average per day, March			83,724 96
Average per day, February			83,547 40
Average per day, January			71,855 43
Deliveries.			
DISTRICT.	PIPE.	April.	May.
All Points	United	1,584,047 32	1,637,293 44
Titusville	Octave Pet. Co.	4,717 78	4,978 80
Franklin	Franklin Pipe	4,563 81	5,343 00
Shaffer	Shaffer Run		
Oil City	Charley Run		
Bradford	Tidewater	314,957 62	346,129 21
Total deliveries		1,908,378 91	1,993,654 01
Everage per day, May		636,126 30	64,311 42
Amnt of runs in excess of Shipments		167,836 66	88,334 78
Net Stocks,			
DISTRICT.	PIPE.	April 30. Barrels.	May 31. Barrels.
Oil City	Charley Run	3,986 31	3,986 81
Bradford	Tidewater	2,309,553 22	2,206,676 34
All Districts	United	33,123,726 44	33,366,470 59
Shaffer	Shaffer Run	28,052 75	28,052 75
Titusville	Octave Oil Co.	5,520 50	4,957 00
Franklin	Franklin Pipe	30,919 43	32,102 07
Total May, 1883			35,642,245 56
Total April, 1883			35,500,859 75
Total March, 1883			35,594,680 84
Total February, 1883			35,513,157 73
Total January, 1883			34,952,662 43
Total December, 1882			34,335,180 58
Total November			33,604,841 36
Total October			32,210,533 76
Total September			31,253,974 61
Total July			30,157,021 20
Total June			29,540,517 47
Total May			28,833,715 51
Total April			27,969,884 48
Total March			27,252,806 93
Total February			26,414,274 36
Total January			25,788,071 79
Increase, May			141,385 81
Decrease, April			93,821 69
Increase, March, 1883			61,523 01
Increase, February, 1883			600,495 60
Increase, January, 1883			617,481 65
Increase December, 1882			730,239 22
Increase, November			838,195 69
Increase October			556,111 91
Increase September			957,485 53
Increase, August			1,096,026 41
Increase, July			616,503 73
Increase, June			706,801 96
Increase, May			863,631 03
Increase, April			717,077 55
Increase, March			838,532 57
Average increase per day, May			4,560 80
Average decrease per day, April			3,127 72
Average increase per day, Mar., 1883			1,984 55
Average increase per day, Feb., 1883			21,446 27
Average increase per day, January, 1883			19,918.76
Average increase per day, Dec., 1882			23,556 10
Average increase per day, November			18,537 06
Average increase per day, October			27,823 88
Average increase per day, September			27,874 64
Average increase per day, August			35,355 69
Average increase per day, July			19,887 21
Average increase per day, June			23,902 58

Average increase per day, May	27,859 06
Average increase per day, April	23,902 58
Average increase per day, March	27,049 44
Average increase per day, February	22,364 00
Average increase per day, January	12,174 73

THE ALLEGANY FIELD.

TABLE SHOWING THE PROGRESS OF DEVELOPMENTS AND PRODUCTION OF THE ALLEGANY (N. Y.) OIL FIELD.

MONTH.	No. of wells com- pleted.	Dry.	Production, bbls., of new wells.	Average per well.	Average daily Pro- duction of Field, bbls.	Drilling.	Rigs.	Stocks in wooden tanks, bbls.	Stocks in Iron tanks, bbls.
Total, 1880	8	42	76	9½	76	4	6		
Jan'y, '81,	4	2	18	9	94	4	5		
February	4	1	24	6	112	4	8		
March . .	5	2	60	12	162	4	7		
April . .	3	1	20	10	170	5	6		
May . .	4	1	48	12	212	20	21		
June . .	14	8	130	9½	327	24	35		
July . .	22	5	275	12½	588	47	57		
August . .	53	17	586	11	1080	62	68		
September	63	11	910	14½	1740	105	118		
October .	96	5	1432	15	2896	164	198	38000	108891
November	154	10	2732	17½	5180	155	200	84666	142216
December	196	2	5115	26½	8937	187	204	180200	169250
Jan. 31, '82,	162	2	3914	24½	11123	191	209	270860	243147
Feb. 28th	189	4	4154	21.97	13200	212	201	373460	258247
March 31st	216	2	5580	25.83	16000	215	221	374490	359347
April 30th	257	6	6356	24¾	20760	226	230	400000	417347
May . .	265	7	5992	22¾	22438	179	191	440000	542347
June . .	163	11	3605	12	22220	94	153	475000	650000
July . .	81		1488	18½	19391	45	123	375000	550000
August .	60	6	1199	20	17650	34	98	295927	550000
September	29	3	435	15	16320	39	58	275610	540000
October .	45	3	660	4½	14802	70	51		
Nov. . .	75	7	983	13½	12900	67	82		
Dec. . .	63	2	722	11½	11600	54	66		
Jan. 31, '83,	60	6	703	11½	11900	60	60	250000	
Feb. 28 . .	67	12	804	12	11100	64	70	200000	
Mar. 31 . .	71	0	937	13¼	11000	81	110	176000	
April 30 .	95	4	1152	12½	10400	94	61	159000	
May 30 . .	112	4	1290	10¾	10500	72	80	120000	

The Allentown section of the Allegany field seems to offer inducements to operators as they are urging the drill in the vicinity quite rapidly. Allentown is not situated upon a very rich deposit, but there is more or less oil in more than a thousand acres surrounding it that the land grabbers during the excitement at Richburg would not stoop to gaze upon. Allentown will probably, therefore, remain a place of some importance and the territory continue to produce long after other towns and sections of the field have passed in their checks and become totally extinct.

The B. N. Y. & P. railroad company, which now controls the entire system of narrow gauge roads of the Oil Regions, is becoming quite a giant in the railroad world. The roads managed by the company are run in the interests of the public, as every need or comfort is provided without stint.

REPORT OF OIL OPERATIONS for MAY.

Wells Completed.

BRADFORD.

District.	Wells.	Prod'n.	Dry.
E. & W. Branches	16	227	1
Kendall Creek	8	100	.
Foster Brook	4	50	.
Cole Creek & B.	1	40	.
Indian Creek	3	36	.
Kinzua	3	80	.
Four Mile	3	60	1
Quintuple	5	66	.
Totals	43	650	2

ALLEGANY.

Alma	20	230	.
Bolivar	19	205	1
Wirt	2	15	1
Genesee	45	540	1
Clarksville	.	.	.
Scio	31	332	1
Totals	117	1322	4

WARREN AND FOREST.

Tiona and Glade.	14	105	1
Clarendon	5	24	.
Forest and Sheffield	33	1301	4
Totals	52	1430	5

LOWER FIELD.

Butler and Armstrong	7	60	2
Bald Ridge	.	.	.
Venango County	8	70	4
Clarion	2	24	.
Totals	17	154	6

GRAND TOTALS.

Warren and Forest	52	1430	5
Allegany	117	1322	4
Bradford	43	659	2
Totals	229	3565	17
Totals, March	212	3822	20

Drilling Wells.

District.	Drilling.	Rigs.	Total.
East Branch	19	12	31
Big Shanty	.	.	.
Quintuple Tract and West Branch	3	7	10
Kendall Creek	14	10	24
Foster Brook	6	10	16
Cole Creek and Bing	1	3	4
Indian Creek	6	10	16
Four Mile	6	4	10
Kinzua	1	2	3
Elk County	2	2	4
Lower McKean County	1	1	2
Totals	59	61	120

ALLEGANY FIELD.

Alma	18	12	30
Bolivar	14	13	27
Wirt	2	2	4
Genesee	21	33	54
Clarksville	3	5	8
Scio	14	15	29
Totals	72	80	152

WARREN AND FOREST.

Tiona	7	10	17
Clarendon and Glade	11	6	17
Cherry Grove	1	0	1
Sheffield and Forest County	26	16	42
Totals	45	32	77

LOWER FIELD.

Venango County	4	4	8
Butler County	.	.	.
Bald Ridge	18	3	21
Clarion and miscellaneous	10	3	13
Totals	32	10	42
Grand Totals Bradford	59	61	120
Allegany	72	80	152
Warren and Forest	45	32	77
	208	183	391
Totals, May	217	221	438
Increase, May	9	38	47

Warren and Forest Operations for May.

WELLS COMPLETED.

GLADE.

Farm.	Operator.	Production.
Davis, Davis	.	10
Sweden, J Magee	.	9
Schofield, A H Daniels	.	5
McWilliams, Branch Bros	.	dry
Shultz, Shultz	.	3

CLARENDON.

Riddlesperger, Riddlesperger Bros No 4	.	6
Tolles pur, South Shore Oil Co	.	14
Lot 79, Anchor Oil Co	.	4
530, H B Porter	.	5
530, Gilson, Adams & Co	.	5

TIONA.

Lot 109, Little Toby Oil Co No 5	.	5
109, Kervin & Co No 1	.	8
165, Hill & Co	.	10
165, Clark & Foster No 4	.	10
165, C H Coffin & Co No 3	.	12
166, Arctic Oil Co No 2, est	.	10
205, Roberts & Elliott No 2	.	5
205, Hallock & Johnson No 1	.	5
206, Heatly & Co	.	4

COOPER TRACT.

Tract 2,735, McCalmont Oil Co No 4	.	30
2,735, " " 5	.	50
2,735, " " 6	.	40
2,735, Reno Oil Co No 4	.	50
Grandin pur, Syndicate No 2	.	65
Cooper, Anchor Oil Co No 6	.	75
" " " 15	.	90
" " " 24	.	100
" Clark & Foster No 3	.	25
" Lot No 7, Melvin, Walker, S. & Co No 9	.	40
" " " 8	.	10
Herriek, Union Oil Co No 2	.	50
" " " 3	.	70
" " " 4	.	50
E T Co, Fertig & Henne No 2	.	6
" " " 3	.	25
J A Tract, Stewart	.	30
Tract 2,877, H B Porter No 4	.	35
3,198, Melvin, Walker, S. & Co No 10	.	60
3,198, Clark, Murphy & Brenneman	.	70
3,193, div G, Miller & Co	.	dry
Clapp, J M Clapp, est	.	3
Lot 440, Reid & Brenneman	.	5

BALLTOWN.

Lot 732, Miller & Co	.	dry
741, J H Markham	.	dry
740, Nandergrift & Miller	.	dry
3,792, Balltown Oil Co	.	80
4,821, Dutch Oil Co No 2, est	.	10
3,194, Porcupine Oil Co No 2	.	30
3,194, " " 3	.	40
3,194, " " 4	.	5
5,236, Welsh, est	.	100
5,236, Gandin No 8	.	50

Wells completed	52
Production	1466
Dry	5

DRILLING WELLS.

GLADE.

Irwin, C W Brown & Bros.	200
Davis, Davis & Co	rig
Sweden, J Magee	rig bldg
Sutter,	200
Curtis, Warren parties	150

CLARENDON.

Riddlesperger, Riddlesperger Bros	50
Wade & Co	sand
Lot 79, Rock Oil Co	rig
79, Anchor Oil Co	rig
79, Adams & Story	200
107, Winsor Bros	sand
498, Brown Bros	rig
529, C A & D Cornen No 5	800
528, " " 6	rig
527, Tannery Oil Co	sand
557, Bryan & Hopkins	drilling
557, O'Donnell & Co	drilling

TIONA.

Lot 109, Kerwin & Co No 2	rig bldg
158, Arctic Oil Co	rig bldg
160, Helm & Co	400
160, Hague & Co	rig
160, Hopewell & Co	200
165, Clark & Foster No 5	100
165, " " 6	rig
165, " " 7	rig
165, C H Coffin & Co No 4	sand
166, Fertig & Henne	rig bldg
166, Arctic Oil Co No 3	rig bldg
166, Gurner Bros	sand
200, Shear & Co	rig
200, W Ballard No 2	sand
200, " " 3	rig
205, Steelesmith & Co	800
205, Hallock & Johnson No 2	rig

CHERRY GROVE.		
Lot 589, John Markham		sand
COOPER TRACT.		
Tract 2,735, McCalmont Oil Co No 7		sand
2,735 " " " 8		sand
Syndicate Anchor Oil Co No 3		700
" " " 7		750
" " " 8		rig
" " " 18		500
" " " 19		sand
" " " 20		200
" " " 25		300
" " " 26		500
" " " 27		rig
" " " 28		200
" " " 19		400
Grandin pur " " 4		rig bldg
Lot 2, Clark & Foster No 4		1400
2, " " 5		rig
2, " " 6		rig
8, Melvin, W S & Co No 13		1000
6, " " 14		rig
6, " " 15		rig
Herrick, Union Oil Co No 5		600
" " " 6		300
" " " 7		150
" " " 8		rig bldg
(north half) Union Oil Co No 1		rig
Tract 2,877, H B Porter		100
Lot 438, Shank & Emery		600
441, Reid & Brennehan		500
441, Murphy & Co		600
BALLTOWN.		
Tract 3,174, Porcupine Oil Co No 5		600
3,191, " "		3 rigs
4,792, Balltown Oil Co		800
4,792, " "		2 rigs
4,792, " "		rig bldg
4,821, Dutch Oil Co No 1		400
4,821, Balltown Oil Co No 7		800
5,236, Grandin, Kelley & Co No 9		600
3,195, Briody & Barnsdal		500
3,195, A J Gartlan		rig
Rigs up and building		32
Wells drilling		44
Total		76

THE FUEL OF THE FUTURE.

BY H. F. HAYDEN, WASHINGTON, D. C.

But probably the most valuable of this series of patents is that which adapts hydro-carbon oils for generating steam on locomotives, boilers on ocean steamers and for stationary engines. By a simple mechanical modification of the construction of the fire box and combustion chamber of the locomotives it is believed that a perfect combustion of the hydro-carbon oils is provided for, and the highest per cent. of the theoretical value of the liquid fuel obtained, amounting to many units over the best results of any other mode of combustion ever tried. Of course, dust and cinder will be avoided, as will smoke and deleterious gases, and, at the same time, the cost of fuel will be greatly reduced. To crown all, the introduction of these inventions renders inflammable fuel as safe to use as steam.

It should have been stated that the waste heat from combustion is utilized in super-heating the steam and air, and vaporizing the oil, making the action of the various machines automatic, or self-sustaining, after they have once been put in operation. The expense and cost necessary in operating a generator is thus reduced to the very possible minimum.

The waste chambers in the smelting furnace are so arranged for the condensation of any metals which may become vaporized in the process of

smelting that the products reach the stack at a very low temperature. Nearly every atom of metal vaporized must therefore be reclaimed, and the smallest fraction of that contained in the ore under treatment be lost in the process of reduction.

The operation of these machines and the intensity of the heat is regulated absolutely by only three valves—one each for oil, steam and air. The furnaces may thus be supplied with an oxydizing or fusing heat at will; may be kept steadily at a temperature of one thousand degrees, or at any degree under that, or may be heated to such an intensity that the temperature can possibly be only a matter of conjecture, and be retained steadily and with absolute certainty at the exact point required for any specific work, and just as long as desired.

As before stated, it is a fact, easily proved, that the apparatus now owned by the Vapor Fuel Company is the only one which, up to this time, in all the world, has given practical results in return for the immense sums of money expended in trying to get out of them what their inventors intended they should do. But this paper would be incomplete without a fair comparison of that invention with the later ones by the same inventor.

Briefly, the first invention of Mr. Hayden is a process of *distillation* or *evaporation* of liquid hydro-carbons, leaving a residuum of heavy material to sink by its own weight to the bottom of the retort, and there to be drawn off so as to keep the tubes free that conduct the super-heated steam into the "generator." The most volatile matter, thus driven off by heat, rises into the vapor pipe which supplies the burner, because it is as light as the steam, and is borne upward by its current. *The residuum unvaporized is liable to become troublesome in the bottom of the generator.*

On and after June 1st the American Express Company will operate over the entire system of the Buffalo, New York & Philadelphia road. The Road recently ordered, from J. G. Brill & Co., of Philadelphia, five first-class coaches, fifteen excursion cars, the latter similar to the cars running on the New York Central between Buffalo and Niagara Falls, eight baggage and express cars and one combination car.

The Free Pipe bill may become of some benefit some day in case a new deposit is discovered remote from present developments.

THE PETROLEUM AGE.

DEVOTED TO THE

Interests of the Petroleum Trade.

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W. J. McCULLAGH,
Editor.

Cincinnati has an oil exchange.

At the fire at the petroleum bonded warehouses at Oporto, Spain, five lives were lost.

The Philadelphia Petroleum Exchange and the Mining Annex of the Stock Exchange have decided to amalgamate in the old Merchant's Exchange building.

Chicago has at last caught the "fever," and it is proposed to organize an oil exchange at once. When such cities as Chicago and Indianapolis have oil exchanges may we not expect St. Louis, New Orleans, Denver and San Francisco to follow suit?

The scouts and some of the operators of the middle field have enjoyed quite a contest, the former struggling to obtain correct intelligence from "mysterious" wells, while the latter have resorted to all kinds of schemes to frustrate them.

Stock reports which show a continuous decline in the quantity held at the wells for a year or more ought soon to show that the tank bottoms were being "skinned." "Reports" of this kind have about as much to do with regulating the oil market as a single agriculturist's slaughter of bugs has upon the United States' potato crop.

The total shipments by river and rail from the Northern Oil Regions for May exceeded 2,000,000 barrels, and the receipts from the wells were 2,082,099. As the stocks at the wells were reduced at the rate of about 4,000 barrels a day the hour has arrived when shipments are greater than the production. It is possible that a much greater draught will be made for a few months to come, though the new wells in Forest county are aiding materially in sustaining the average yield.

THE POSITION OF PETROLEUM.

The commercial importance of American Petroleum to the United States is very great. In one respect, at least, it supercedes all other commodities; it penetrates almost every nook and corner of the universe, introducing America, and blessing the populace with the cheapest and most brilliant light of the age. Oil is found, as the trade fully understands, in many parts of the Old World, but as yet its illuminating characteristics are far inferior to that produced in this country. The producers and dealers in Russia find this to be true to an uncomfortable extent while attempting to offer their product in competition to the American article. The latter, therefore, for illuminating and heating purposes, will continue to command the patronage of all people until discoveries differing widely from those now visible are made. These facts are apparent through the continued increased demand from foreign ports. In 1882 592,409,097 gallons were exported, but in 1881 the quantity exported exceeded this amount by 7,781,141 gallons, refined, crude and naptha included. But the apparent decline in 1882 is easily accounted for. During the enormous over production in 1880 and 1881, foreign ports became more largely stocked than usual. As these stocks, therefore, were purchased at very low rates the foreign consumer, it is assumed, is now and has been reaping some of the benefits of the misfortunes of American producers. Foreign dealers, however, have kept a close watch upon developments in this country, and are guarded fully at all times. They fully appreciate the circumstances at the present time and keep the stocks at all the ports fully up to the standard of last year, notwithstanding increased orders from the interior. The business, therefore, of the first six months of 1883 is exceedingly healthy. European dealers feel encouraged somewhat, though they seriously regret not having secured greater quantities during the depression of the last year. As a rule they have believed that it is possible for the American producer to proceed and elevate the daily production to any extent at any time he chose. This fallacious idea is now losing its grasp on their intelligence and they begin again to doubt the eternal resources of this continent. As a consequence, unless some important development transpires in the producing fields aside from anything which now appears, the year through which we now are hastening

will show an improvement in the foreign trade and an increase in the quantity exported that will astonish the whole country.

Then, again, our home demand increases with considerable rapidity. In the southern states, especially, this fact becomes of striking importance, and is the result of a serious competition between two distinct and opposing elements of the trade, viz: The Standard Oil Company, represented by Chess, Carley & Co., and the independent refiners of the south-east border and the south-middle states. This controversy has not only been conducted to the advantage of the retail dealers and the consumer, but to the railroads and newspapers as well. The press of the south-west country seems to take a lively interest in these affairs, which is a most promising and healthy feature of the contest. It awakens the rural public and calls its attention to the matter. And it should be understood that this "rural public" of the South and South-west has not yet passed its "teens" in oil intelligence. A glass lamp is a luxury kept on the "spare room" table as an ornament, the light rendered the visiting neighbors being shed from the old fashioned and non-explosive tallow candle or dip. But lamps and oil are both coming into general use, and it is this constant but sure and certain increase that will tell, in language quite clear, even during the present year, upon surplus stocks. Instead, therefore, of the 17,000 barrels a day consumed during 1882, the year 1883 must show a use for at least 21,000 barrels per day—perhaps more. Thus the producer of petroleum may feel considerably encouraged over the situation. The producing fields at the present time do not insure immediate increase of yield, nor are there threatening signs of the distant future. The article demands about double the price of a year ago, which must add two dollars to the bank account where one was placed then—\$2.00 for one.

THE TABLE OF PRODUCTION AND CONSUMPTION REVIEWED.

The table which gives the total production and consumption since the origin of the petroleum business, elsewhere printed, is an interesting addition to the statistical literature of the Oil Regions. It tells the story in short metre of the rise and fall of all districts thus far developed, and lays before the reader a plain exhibit of the industry from its inception to the close of 1882, the figures for the latter year having just been

compiled. This table portrays clearly the wonderful growth of this valuable trade, and is used, or can be used, only by the PETROLEUM AGE without proper permission. It is perhaps the most valuable table on record of this or any other industry. It shows a remarkable contrast in the amount of oil produced by the original deposits—Oil Creek, Pithole, &c—and those of later years, though it was thought at one time that Oil Creek and vicinity "owned" all of the petroleum product of the realm. Then Pithole, which appeared so suddenly and startled the world with the roar of its 3000-barrel gushers, comes in for another comparison that makes it appear rather diminutive, indeed. After all have been summed up the great Bradford district towers above them as the ocean appears above a mill pond. Twenty-four years have passed since the work of exploring the sand rock below the surface, first began by Colonel Drake, in the valley of Oil Creek, and from that time up, nearly a quarter of a century, there has been a general, gradual growth in all branches of the business so that, unlike any other, the methods, means and appliances used at present are in no degree those practiced at the beginning except the simple fact that a hole is made in the earth. It is different with the mining of coal or of the precious metals. The same process pursued in developing these thirty years ago is still in vogue. The age of petroleum seems to be a rapid age, and the "spirits" engaged seem to have superior ability to apply the forces of science in simplifying and expediting the work of producing it. A well is now drilled 2,000 feet in a period of thirty days, and frequently in much less time, whereas, ten or fifteen years ago a party proceeding to sink a hole to such a depth would not think of beginning the contest unprovided with from a half to a whole year's stock of provisions and an endless array of fishing tools and implements for which there is little use at the present day. Examine the table above referred to and see at a glance what a proud distinction that petroleum lays claim to in the commerce of this country and of the nations.

Some fourth sand reports have been sent out from the Bradford field, and the truth is there is foundation for them. But so far as obtaining a very productive rock is concerned there appears to be no danger at the present time. A kind of rock exists in some localities, but it is not general and has in no instance caused material improvement in the wells.

STATEMENT made by the United Pipe Lines July 10th, 1880, and enlarged to May 31st, 1883. It gives gross stocks, sediment and surplus, net stocks, outstanding balances, receipts (or runs) from all sources, and total deliveries, or shipments:

	Gross Stocks.	Sediment and Surplus.	Net Stocks.	Outstanding Acceptances.	Credit Balances.	Receipts from all Sources.	Total Deliveries.
1877—April	1,895,153.71	77,386.70	1,817,767.01	449,640.14	1,368,126.87	200,570.81	125,797.90
May	1,762,602.64	75,363.87	1,687,237.77	663,663.71	1,003,574.06	493,200.58	619,612.26
June	1,596,367.68	81,255.42	1,488,112.26	661,786.57	826,325.69	538,906.95	737,609.77
July	1,482,433.51	81,741.50	1,400,692.01	667,166.36	733,625.65	615,145.46	699,476.18
August	1,489,052.53	81,144.63	1,407,907.90	643,281.46	764,626.44	673,403.04	666,144.28
September	1,339,032.27	67,163.68	1,271,868.59	552,676.26	719,192.33	625,225.37	769,745.57
October	1,434,728.78	46,771.99	1,387,956.79	673,850.05	714,106.74	687,094.59	570,092.71
November	1,691,399.52	39,418.00	1,651,981.52	657,591.36	994,390.16	913,644.19	649,242.70
December	2,830,413.36	68,729.63	2,761,685.73	754,338.25	2,007,347.48	1,656,150.37	506,332.99
1878—January	3,124,641.15	72,453.43	3,052,187.72	864,711.41	2,187,476.31	872,681.18	715,149.78
February	3,439,526.98	82,452.66	3,357,074.32	1,404,292.13	1,952,782.19	1,030,688.44	720,478.14
March	3,940,000.65	92,963.06	3,847,037.59	1,487,430.50	2,359,598.09	1,196,251.26	701,681.27
April	4,335,274.84	133,935.76	4,201,340.08	1,615,791.19	2,585,548.89	1,137,359.40	778,050.53
May	4,609,681.45	150,117.76	4,459,563.69	2,065,333.31	2,394,230.38	1,104,352.40	843,081.33
June	4,719,699.25	181,800.03	4,537,899.22	1,950,420.81	2,587,478.41	1,092,604.02	1,004,474.55
July	4,885,851.72	229,080.78	4,656,770.94	2,078,466.56	2,578,301.38	1,258,648.45	1,108,074.33
August	4,571,658.59	217,085.19	4,354,573.40	2,064,590.75	2,289,982.64	1,195,268.67	1,496,009.04
September	4,410,061.84	225,088.86	4,184,972.88	2,705,853.95	2,479,119.03	1,182,118.57	1,318,265.33
October	4,072,267.43	234,050.89	3,838,576.54	1,517,484.27	2,321,092.27	1,271,174.73	1,564,984.43
November	4,083,972.42	216,655.30	3,867,317.12	1,784,443.35	2,082,873.77	1,159,623.71	1,129,047.42
December	4,098,200.92	201,470.30	3,896,730.62	1,741,311.07	2,155,419.55	972,338.83	924,035.93
1879—January	4,759,031.41	182,707.80	4,576,323.61	2,153,763.83	2,422,559.78	1,231,237.19	546,271.74
February	5,157,646.15	171,689.80	4,985,956.35	2,346,238.22	2,639,718.13	1,055,377.95	643,828.71
March	5,503,768.71	190,797.91	5,312,970.80	2,484,861.83	2,828,088.87	1,363,512.17	1,029,029.70
April	5,885,675.24	211,957.06	5,673,718.18	2,644,301.36	3,029,416.82	1,379,349.76	1,015,482.04
May	6,180,843.53	315,992.98	5,864,850.55	2,522,846.36	3,342,364.19	1,488,514.31	2,228,043.27
June	6,426,802.45	334,457.29	6,092,345.16	2,959,921.12	3,132,424.04	1,437,250.90	1,204,557.54
July	6,419,699.08	323,295.32	6,096,403.76	2,323,575.29	2,772,828.47	1,472,651.01	1,465,518.05
August	6,380,606.63	300,345.15	6,078,261.48	3,581,224.03	2,497,037.45	1,714,620.11	1,728,940.81
September	6,589,859.83	325,363.85	6,264,995.98	3,783,480.38	2,481,015.60	1,691,863.41	1,455,811.45
October	6,701,209.87	299,393.67	6,401,816.20	3,788,155.65	2,613,660.55	1,646,725.06	1,502,991.20
November	6,951,133.67	303,641.17	6,647,492.50	3,927,300.18	2,675,192.32	1,600,961.29	1,328,621.19
December	7,362,409.76	294,571.37	7,067,838.39	4,235,459.40	2,832,378.99	1,771,781.24	1,331,822.12
1880—January	7,735,257.38	295,517.60	7,439,739.78	4,436,788.55	3,002,951.25	1,832,963.04	1,145,194.98
February	8,187,012.49	322,568.93	7,864,443.56	4,602,286.49	3,262,157.07	1,607,663.89	1,178,111.92
March	8,621,097.49	351,130.35	8,269,967.14	4,811,894.33	3,458,072.81	1,815,133.31	1,396,037.88
April	9,662,354.59	388,558.16	9,273,796.43	5,846,536.60	3,427,259.83	1,739,297.37	723,794.73
May	10,306,078.79	454,193.73	9,851,885.06	6,361,320.05	3,490,565.01	1,552,240.91	975,061.26
June	11,266,771.77	477,431.60	10,789,340.08	7,397,131.89	3,392,208.19	1,781,937.29	848,339.08
July	12,039,010.00	475,446.56	11,563,563.44	8,125,241.25	3,438,332.19	1,890,161.44	1,095,528.25
August	12,749,623.28	462,987.28	12,286,636.00	8,635,394.80	4,651,241.20	1,904,452.70	1,177,448.42
September	13,618,276.03	382,398.71	13,236,327.32	9,287,193.94	3,949,133.38	2,075,105.26	1,115,184.71
October	14,020,877.32	391,331.55	13,629,545.84	9,448,615.77	4,180,930.07	1,999,487.98	1,598,285.06
November	14,656,891.55	341,262.67	14,315,628.88	10,038,824.08	4,231,804.80	1,859,991.50	1,064,146.39
December	15,369,758.67	361,184.83	15,008,573.84	10,913,283.49	4,095,290.35	1,987,283.54	1,207,928.35
1881—January	16,291,307.87	360,688.98	15,930,618.89	11,672,583.61	4,258,035.28	1,876,526.50	931,818.71
February	17,355,485.31	391,616.47	16,963,868.84	12,029,594.35	4,934,274.49	1,823,713.46	781,745.93
March	18,488,476.94	432,304.19	18,056,172.75	13,099,262.44	4,956,910.31	2,222,812.39	1,116,695.11
April	19,560,752.23	517,422.38	19,043,329.85	13,846,285.20	5,197,044.65	2,182,636.96	1,183,779.02
May	20,591,177.33	640,662.03	19,950,455.30	14,608,124.70	5,342,330.60	2,278,582.78	1,356,688.23
June	21,397,698.53	756,412.85	20,641,285.68	14,738,828.77	5,902,456.91	2,318,445.18	1,545,448.13
July	21,982,161.42	774,402.94	21,207,758.48	15,150,267.23	6,057,131.25	2,396,472.50	1,756,044.15
August	22,474,105.51	800,343.43	21,673,762.18	15,240,553.15	6,433,209.03	2,527,888.69	2,013,844.67
September	22,727,740.61	820,434.43	21,907,306.18	15,626,283.11	6,281,023.07	2,233,085.37	1,900,251.83
October	23,212,951.99	801,243.43	22,431,708.56	16,408,030.46	6,023,678.10	2,452,428.66	1,803,052.62
November	23,303,782.34	746,980.08	22,556,744.26	16,407,354.48	6,149,389.78	1,995,895.38	1,742,462.86
December	23,862,966.20	775,000.00	23,087,966.20	16,496,380.40	6,234,291.37	2,255,252.50	1,696,068.64
1882—January	24,243,382.26	762,111.53	23,481,270.73	17,788,245.97	5,693,024.76	1,984,325.23	1,547,945.23
February	24,704,933.81	765,000.00	23,939,933.81	18,541,340.52	5,831,402.36	2,062,742.92	1,601,191.43
March	25,663,298.81	887,210.88	24,776,087.93	19,039,760.73	5,736,327.20	2,305,538.30	1,453,354.46
April	26,519,252.22	993,150.92	25,526,101.30	19,963,183.00	5,562,918.30	2,145,965.63	1,381,093.10
May	27,518,619.53	1,161,789.36	26,356,830.17	20,622,520.38	5,734,309.79	2,339,170.39	1,496,566.23
June	28,311,328.53	1,344,852.60	26,966,475.93	21,282,495.62	5,683,980.31	2,419,934.81	1,796,712.55
July	28,955,781.79	1,330,493.28	27,625,288.51	22,037,273.31	5,588,015.20	2,599,606.49	1,982,695.57
August	30,198,208.64	1,370,660.62	28,827,548.02	22,094,815.90	6,732,732.10	3,176,053.39	1,870,745.07
September	31,068,182.32	1,473,646.07	29,594,536.25	23,824,360.13	5,770,176.12	2,569,036.25	1,799,316.21
October	31,390,694.71	981,249.05	30,409,445.66	24,031,440.00	5,647,240.00	2,369,517.35	1,834,217.13
November	31,900,475.68	894,397.98	31,006,077.70	25,722,724.08	5,283,353.62	1,970,991.00	1,157,156.36
December	32,859,088.91	1,068,847.17	31,790,241.74	25,420,570.77	6,369,670.97	2,013,995.86	964,908.48
1883—January	33,772,761.77	1,054,109.94	32,718,651.83	26,423,935.50	5,994,716.33	1,811,822.50	1,422,218.09
February	34,190,453.76	1,204,023.09	32,986,430.67	26,618,762.40	6,367,668.27	163,015.80	1,043,912.67
March	34,655,372.56	1,543,361.15	33,112,011.41	25,853,292.32	7,258,719.12	1,783,537.51	1,378,966.55
April	35,089,989.04	1,966,262.60	33,123,726.44	25,393,241.33	7,730,484.91	1,856,792.91	1,584,047.32
May	35,577,182.89	2,210,712.30	33,366,470.59	27,084,933.67	6,281,536.92	1,895,282.60	1,637,203.44

THE SITUATION.

There has occurred but little change in the actual condition of the oil business during the month past, but that "little" favors the position of the holders of the commodity. Any one who studies the reports made in this journal from month to month, can form a pretty correct opinion of the situation, if not a word be written in explanation. The figures are as near facts as it is possible to obtain, and all representations are made with a view of leading the mind of the reader in the direction of truth. There occurred a fair decline in active or drilling operations, but the daily yield was maintained to a remarkable degree. This appears by our calculations, which are based upon the Pipe Line runs and shipments. The former were larger for the month than had been anticipated by the trade, but this was, in a large measure, owing to the heavy draught made upon the well stocks of Bradford and Allegany. This drain must cease shortly, and, in fact, has already ceased, for the runs for the first half of June show an interesting depreciation.

It has, therefore, become a matter entirely for the future wildcat drill to decide whether values are to be largely exhauced or seriously depressed. The present outlook, however, most certainly favors the first part of the proposition. In the Northern field, while considerable work is being done, there is no possible hope of maintaining the daily yield, even at its present depreciated condition, and of the Lower districts the same is, perhaps, strictly true. It is left for the Center field to act the part of umpire in the interesting game now playing between the opposing elements of the trade. Every new well is used for much more than its face value in depressing prices, and every actual guage of production acts upon the other side. The market was driven from 120 during the early part of the week commencing Monday, June 19th, to 113 $\frac{1}{4}$ by the introduction of one well, viz: Grandin No. 9, Balltown pool. This well, while it made a fine showing at the opening, cannot be rated as an important strike as it lies in too close proximity to No. 7 of the same owners. It is true it is somewhat west and indicates the existence, on that side of No. 7, of the better portion of the deposit. It certainly does not extend the territory to the southwest, though it shows a heavier quantity of oil at that end than was thought to exist. It started at the rate of about 700 barrels per day, and in a week was

dying less than 200 barrels. The pool is evidently quite rich, but is so extremely narrow as in the case of Cherry Grove, that its lasting qualities are very treacherous. At the Porcupine end of the deposit, the Balltown Oil Co. No. 3, which was completed on the 20th inst., is also a much better well than was expected in that latitude as it is well out on the western edge, though within the defined limits. Aside from these two ventures there is nothing of interest to note in the field. All other outside test that have been looked upon as dangerous to the trade, are, for the present at least, out of the way and the path seems clear for another move in the right direction—upward. As heretofore stated, however, the trade is destined to witness violent fluctuations. They may far exceed any yet experienced this year, as the slightest move in the producing fields tending toward an enlargement of the area of first-class territory has the effect of driving holders all over to one side and that to sell. This was observed in the striking of Grandin No. 9 above referred to, and will be repeated from time to time as values continued, to improve as they surely will, providing some strange, and at present, very unforeseen and unexpected event happens immediately.

The financial condition of the country was never more promising of enormous speculations and capitalists who have never touched oil as a medium of this character are now by the score seizing upon the grand opportunities it affords. But few failures of importance occurs in the business, which is one of the most promising signs of the immediate future. It indicates a gradual strengthening of confidence and a growing belief that the commodity is very cheap, even at the rates now ruling. But the person who would burden himself beyond his ability to navigate under any circumstances would be very foolish, indeed. This is the proper time for the exercise of reason in the matter. A speculator must remember that there are some chances always of something appearing that will interfere with his good fortune. This was terribly true of the lard and other speculators at Chicago during the middle of the present month. The failure of one individual—McGeoch—a man whom it was supposed was beyond the pale of distress, very nearly caused a panic, as about fifteen other individuals or concerns were driven to the wall through a single failure. A fair margin of profit is much more beneficial than even a slight loss. The latter is difficult to make when the tide turns, and the

former may be acquired by proper care. The situation as compared with last year warrants such belief. At that time Cherry Grove was beginning to pour out its vast volumes, and apparently inexhaustible quantities of oil, and operations in many parts of the old fields were conducted with considerable force. In Allegany there were large tracts of medium territory to drill, and in McKean county more than one hundred wells were completed every thirty days, so that every feature of the business one year ago was as widely different from the present as night is from day. Then we were receiving 75,000 barrels of oil a day, and a deposit just opening capable, as was shortly thereafter proved, of yielding over 5,5000 barrels of oil in a single day. It seemed almost a miracle then that the price of crude oil was maintained above fifty cents a barrel. The miracle which appears now is that it is retained so near \$1.00. Instead of 75,000 a day and a rapidly increasing production we have it 59,000 and steadily declining. Instead of 300 new wells per month and large areas for further developments we have now about 200 with territory circumscribed and all of the medium character. Last year we were producing 20,000 barrels per diem in excess of the amount consumed, and even this extensive margin was enlarged. Now we have production somewhat less than consumption for the first time in ten years, a circumstance that does not seem to be fully appreciated by the trade. The question of new developments, of course, arises at all times to smother hope of great improvement, and will continue to act as the moderator of values for perhaps all time. It is quite certain all the deposits in the country have not yet been discovered, no matter what geologists may assume. The Richburg country was classed among the worthless by "scientific producers," even after the opening by O. P. Taylor of Triangle and Richburg. It was not supposed that a rich conglomerate could exist in the latitude. The same will probably be true of other localities, but we are now left at the mercy of some fortunate or unfortunate stumbler to produce such a result. How many days, months or years are to be consumed in the search? is the question of the hour. Until it arrives, therefore, it is unnecessary to comment upon it. Deprived of it, as we are, the trade has not in five years witnessed a more promising situation. The foreign trade continues lively and exports are exceeding those of last year in a degree very satisfactory, indeed. The competition promised by the Russian pro-

ducers in foreign markets does not promise to become of dangerous proportions. All kinds of schemes are conducted by dealers in the commodity of that country to injure the sale of the American product. The latter is adulterated and sent among innocent inhabitants of regions where it has lately entered until some injury has resulted. In other instances the most inferior type of the Russian article is barreled and branded as American, and of course the luckless purchaser is at once disgusted with the American article and will not purchase. The trick, however, has been discovered, especially in those parts of Asia Minor and Turkey and Germany, where a foothold has been long sought by the Russian exporter. All this amounts to nothing in the abstract. A whole year's production of the whole foreign world, as shown elsewhere in this issue, would not equal a few month's yield of the Pennsylvania and New York fields.

With all these facts before the trade it is certainly a time of congratulation for the producers, as well as for those who have been carrying a load of the "stuff" at rates even above the highest point yet reached this year. The outlook is more promising, as above stated than it has been for many years past.

CANADIAN VENTURES IN ROUMANIA.

Recent advices from a party of Canadians drilling for oil in Roumania say that after considerable trouble they succeeded, on February 26, in striking a flowing well, which was still flowing on March 4, at the rate of 150 barrels of 43° splendid oil. It is claimed to be the first one of that kind in Europe. When pumped it is thought this well will be much heavier. The writer says they are upon an immense belt, something similar to the Baku wells on the Caspian Sea, which, as they found this one, are in sand. They pass through a great deal of clay of all kinds first, generally caving faster than they drill. Then they come to sand and then to clay again, and sand, and it is in this strata of sand that any amount of good oil is found, selling in any quantity, especially to Australia, where there are large refiners for 3 dols. a barrel laid down at the Campina station, to where a pipe is laid seven English miles in length, passing twice over mountains. But as Draganesia is higher, it goes down and up, and down to the station by its own weight.

Table Showing Total Production of Crude Petroleum in Pennsylvania and New York Oil Fields, and Consumption—From 1859 to 1881, Inclusive.

Year.	Oil Creek Division. Bbls.	Pithole District Bbls.	Tideute and Fagundas District Bbls.	Central All'g'ny Divis'n. Bbls.	Butler, Armstr'g & Lower Alleghany Bbls.	Clarion Division Bbls.	Bradford Division Bbls.	Bullion District Bbls.	Warr'n Div. Bbls.	Beaver Div. Bbls.	Alleg. Co., N. Y., Div. Bbls.	Yearly Total. All Districts. Bbls.	Consumption. Bbls.	Yearly Average Price.
1859	2000	...	...	...	...	...	...	...	...	...	...	2000	500	20.00
1860	500000	...	...	...	...	...	...	...	...	...	...	500000	300500	9.60
1861	2113609	...	...	...	...	...	...	...	...	...	...	2113609	1280000	.49
1862	3056690	...	...	...	...	...	...	...	...	...	...	3056690	1472000	1.05
1863	2611309	...	...	...	...	...	...	...	...	...	...	2611309	1992800	3.15
1864	2216109	...	...	...	...	...	...	...	...	...	...	2216109	1946620	9.87½
1865	1585200	912500	20500	...	...	...	...	...	...	...	...	2518200	2238610	6.59
1866	2302700	1095000	490000	...	...	...	...	...	...	...	...	3887700	2574401	3.74
1867	2393300	814000	839900	...	...	...	...	...	...	...	...	4047200	2960561	.41
1868	2672617	445500	729000	26000	...	...	...	...	...	...	...	3873117	3404645	3.62½
1869	3462500	365000	535000	22500	45000	...	...	...	...	...	...	4430000	3716341	5.63½
1870	2745528	173585	723838	713150	918644	...	...	...	...	...	...	5274745	4562642	3.89
1871	2040263	182054	697887	1083386	1091458	310293	...	...	...	...	...	5405341	5178038	4.34
1872	1429685	145065	847199	881140	2658080	829079	...	...	...	...	...	6790248	5954742	3.64
1873	1094389	119864	895983	851934	4402563	2526231	...	...	...	...	...	9890964	7847953	1.83
1874	734247	55770	373325	564978	5160265	3921267	...	...	...	...	...	10809852	7875145	1.17
1875	504639	35130	351407	343905	4712702	2821214	18509	...	...	...	...	8787506	9256416	1.35
1876	611884	37450	354284	333640	4755623	2377700	382768	64220	51337	...	...	8968906	10414877	2.56½
1877	734858	60380	312700	474262	5431072	3021120	1465451	1306342	151371	62085	...	13019641	11977107	2.42
1878	686948	60000	308780	363710	4552815	2276408	6482400	505265	108300	92490	...	15437116	13783672	1.19
1879	389400	36500	227900	258652	2876787	1438342	14268945	289591	45550	82100	...	19913767	16851222	.85½
1880	335342	36500	168542	166143	1737969	868984	22343202	146672	91655	102956	...	25997965	18228905	.94½
1881	293504	31938	146474	145374	1394706	844442	22817975	128338	438000	102956	607106	26950813	21263740	.85½
	34516721	4706236	7022719	6228774	38737684	21235080	67779250	2440428	886213	442587	607106	186502798	155081437	3.92½
1882	21000	27840	130540	136200	1200440	701905	16737501	110100	4037111	85120	5082202	28458959	22342380	.797½

RECAPITULATION.

Production by Fields.—1859 to 1882, Inclusive.

Oil Creek Division, including Shamburg, Pleasantville and Enterprise	34,726,821
Pithole Division, including Henderson, Morey and Ball Farms	4,734,076
Central Alleghany, including Scrubgrass and West Hickory	6,364,974
Butler and Armstrong Counties, Lower Alleghany Division..	9,938,124
Tideoute Division, including Economite, Henderson, Farms, etc.	7,153,259
Clarion County.	21,936,985
Bradford Division, including Elk County.	84,516,751

Bullion Field.	2,550,528
Warren, Stoneham and Clarendon	4,923,324
Beaver (Smith's Ferry) Division	527,707
Alleghany Division	5,689,308
Total, all Divisions, Production	213,061,857
Total Consumption	177,423,817
Difference,	35,638,040

This table includes, of course, all available stocks on hand, all sediment and worthless surplus, and the amount estimated for shrinkage, which would reduce the available stocks to the figure given elsewhere.

This table is made to show the amount of oil saved and used. It differs but little with the first production table published in THE AGE

Area of Developed Territory.

Venango County, Pa.	26,000 acres
Crawford County, Pa.	6,400 "
Forest County, Pa.	4,926 "
Warren County, Pa.	11,500 "
Armstrong County, Pa.	5,120 "
Total	

Clarion County, Pa.	19,200 acres
Butler County, Pa.	29,000 "
McKean and Cattaraugus.	65,800 "
Alleghany.	19,260 "
Total	184,200 acres.

This covers all territory productive, whether light or small, as yet discovered in the States of

Pennsylvania and New York.

Young's Paraffine Light and Mineral Oil Company, of Glasgow, Scotland, held its annual meeting, June 19. A dividend of 4 per cent. was announced. The diminution of dividend has been caused by decreased production in consequence of 192 Henderson retorts being erected on the sites of vertical retorts, and the shales being only rich in burning oils, which of late have had to be sold at a loss.

The Canadian oil trade is not in a very healthy condition. The producer suffers an enormous expense between the price of crude and refined, the one being quoted at 90c per barrel and the other at 15c per gallon. A two barrel well in the Dominion is considered a big thing. The belt is being pursued, however, westward toward Sarnia with some prospect of improving it.

Parties indebted to THE PETROLEUM AGE can settle the same at Lerch's Job Office, Rear 61 Main Street, Bradford, Pa.

CRUDE OIL MARKET.

MONTHLY AND YEARLY AVERAGE PRICE OF PIPE LINE CERTIFICATES OR CRUDE OIL AT THE WELLS, IN BARRELS OF 42 GALLONS EACH.

A. D.	Jan. Ave'age	Feb. Ave'age	March Ave'age	April Ave'age	May Ave'age	June Ave'age	July Ave'age	Aug. Ave'age	Sept. Ave'age	Oct. Ave'age	Nov. Ave'age	D'emb'r Ave'age	Yearly Av'ges.
1859.									20.00	20.00	20.00	20.00	20.
1860.	19.25	18.00	12.62½	11.00	10.00	9.50	8.62½	7.50	6.62½	5.50	2.75	2.75	9.
1861.	1.00	1.00	1.00	.62½	.50	.50	.50	.25	.20	.10	.10	.10	.
1862. . . . .	.10	.15	.22½	.50	.85	1.00	1.25	1.25	1.25	1.75	2.25	2.25	1.
1863.	2.25	2.50	2.62½	2.87½	2.87½	3.00	3.25	3.37½	3.50	3.75	3.85	3.95	3.
1864.	4.09	4.37½	5.50	6.56	6.87½	9.50	12.12½	10.12½	8.87½	7.75	10.00	11.00	9.15½
1865.	8.25	7.50	6.00	6.00	7.37½	5.62½	5.12½	4.62½	6.75	8.12½	7.25	6.50	6.87
1866.	4.50	4.40	3.75	3.95	4.50	3.87½	3.00	3.75	4.50	3.39	3.10	2.12½	3.59
1867.	1.87½	1.85	1.75	2.07½	2.35	1.90	2.62½	3.15	3.40	3.55	2.50	1.87½	2.74
1868.	1.95	2.00	2.55	2.82	3.75	4.50	5.12½	4.57½	4.00	4.12½	3.75	4.35	3.41½
1869.	5.75	6.95	6.00	5.70½	5.35	4.95	5.37½	5.57½	5.50	5.50	5.80	5.12m	5.63¾
1870.	4.52½	4.52½	4.45	4.22½	4.40	4.17½	3.77½	3.15	3.25	3.27½	3.22½	3.40	3.89
1871.	3.82½	4.38	4.25	4.01	4.60	3.85½	4.79	4.66	4.65	4.82½	4.25	4.00	4.34
1872.	4.92½	3.80	3.72½	3.52½	3.80	3.85	3.80	3.58½	3.25	3.15	3.83½	3.32½	3.64
1873.	2.60	2.20	2.12½	2.30	2.47½	2.22½	2.00	1.42½	1.15	1.20	1.25	1.00	1.83
1874.	1.20	1.40	1.60	1.90	1.62½	1.32½	1.02½	.95	.95	.85	.55	.61½	1.17
1875.	1.03	1.52½	1.75	1.36½	1.40	1.26½	1.09	1.13	1.33	1.32½	1.44	1.55	1.35
1876.	1.80	2.00	2.01	2.02¼	1.90½	2.01¾	2.24½	2.71	3.81	3.37½	3.11	3.73	2.56¼
1877.	3.53¼	2.70	2.67½	2.58	2.24	1.94¾	2.07½	2.51	2.38	2.56¾	1.91	1.80	2.42
1878.	1.43	1.65¼	1.59	1.37½	1.35¼	1.14	.98¾	1.01¾	.86½	.82½	.89¾	1.16	1.19
1879.	1.03	.98	.86¼	.78½	.76	.68¾	.69¾	.67¾	.69½	.88½	1.05¾	1.18½	.85¾
1880.	1.10¼	1.03⅞	.88¼	.78	.80	1.00	1.06¼	.91	.96	.96¾	.91¾	.91¾	.94½
1881. . . . .	.95½	.90¾	.83¾	.86¾	.81¾	.81¼	.76¾	.78¾	93.3-16	.94¾	.83	.84	.85¾
1882. . . . .	.83¼	.85¾	.807½	.78½	.69¾	.54½	.56¾	.58¾	.74¾	.94	1.27½	.94¾	.79¾
1883 . . . . .	.91¼	.967½	.97½	.92¾	.99¾								

PRODUCTION TABLE.

SHOWING THE TOTAL DAILY NET YIELD OF THE PENNSYLVANIA OIL FIELD FROM SEPTEMBER, 1859, TO MAY 31st, 1883, IN BARRELS OF 42 GALLONS EACH.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals.
1859.									10	15	18	28	2,173
1860.	30	50	89	215	500	1,000	2,000	2,500	3,000	3,500	2,000	3,000	547,439
1861.	3,201	4,041	4,800	5,400	6,000	6,100	7,100	8,500	7,000	5,150	5,514	6,716	2,119,045
1862.	6,000	5,300	7,400	8,000	9,400	9,000	8,500	11,000	13,000	10,505	8,053	7,238	3,153,183
1863.	6,200	6,400	7,000	5,500	6,000	7,603	7,022	8,100	9,200	7,120	9,500	10,260	2,667,543
1864.	8,100	6,300	4,500	5,000	7,000	5,100	5,600	5,700	7,180	5,545	10,100	10,320	2,215,150
1865.	5,900	5,800	5,000	7,500	8,000	8,000	7,400	6,350	6,400	6,800	7,600	9,350	2,560,200
1866.	9,200	9,100	5,000	7,100	8,100	9,500	9,350	9,440	12,000	10,400	11,000	11,165	3,385,105
1867.	10,900	8,100	9,000	10,100	10,500	9,000	10,100	10,000	10,100	7,660	9,155	8,313	3,458,113
1868.	8,200	9,400	8,100	9,300	11,000	12,400	13,000	11,800	10,250	8,225	7,580	7,150	3,540,670
1869.	8,100	8,500	10,000	11,000	13,000	13,000	13,560	13,000	13,500	12,500	11,200	10,625	4,186,475
1870.	11,348	11,802	11,509	12,400	15,990	13,400	13,800	15,950	18,203	18,000	17,061	15,990	5,308,046
1871.	13,500	13,300	13,082	12,950	13,054	13,882	14,900	15,866	15,555	15,889	15,599	15,841	5,278,072
1872.	17,943	17,894	15,680	16,221	17,402	12,140	16,933	17,440	16,598	18,450	25,942	20,630	6,505,774
1873.	20,550	21,460	21,830	22,260	24,632	26,361	23,406	30,900	32,500	31,343	33,584	34,680	9,849,508
1874.	32,800	30,940	29,760	28,104	29,442	31,222	33,987	32,000	29,461	29,944	29,231	28,101	11,102,114
1875.	27,900	26,509	26,012	23,009	23,000	23,805	24,991	23,940	23,800	23,900	23,821	23,594	8,948,749
1876.	23,102	25,440	13,560	23,800	24,628	24,400	24,890	25,300	25,900	26,400	26,500	25,900	9,142,940
1877.	26,930	27,560	28,860	32,060	36,000	37,440	39,210	42,100	41,321	41,200	39,900	40,120	13,230,330
1878.	39,200	39,900	39,200	40,100	41,111	40,820	41,200	42,900	43,999	44,480	45,200	43,900	15,272,491
1879.	44,000	43,830	47,960	50,810	52,911	55,600	56,911	59,940	61,498	60,980	58,750	58,231	19,835,903
1880.	59,982	63,890	66,215	68,063	72,080	73,104	73,794	74,980	71,941	77,491	76,112	74,080	26,086,692
1881.	73,030	69,060	73,900	75,245	79,000	82,460	81,900	79,100	78,231	77,971	77,892	76,642	28,136,353
1882.	75,028	74,910	74,751	76,690	78,601	80,469	90,020	98,739	79,685	72,805	59,513	66,980	28,452,834
1883.....	62,600	59,104	58,883	57,900	58,902								215,984,901
Total twenty-four years to December 31st, 1882													24,541
Average per day for twenty-four years.....													77,950
Average per day for 1882.....													

Joiners to the number of twenty, employed in the cooper shops of the Standard Oil Company, at Cleveland, Ohio, are out on a strike. They held a mass meeting and resolved not to return to work unless the price per 1000 was made 80 cents, the company having made a reduction of

ten cents.
L. Emcay, Jr. & Co., the great oil well supply men, of Bradford, Pa., carry a stock in this city, aside from the other establishments in other towns surrounding, of nearly \$200,000.

WELLS COMPLETED.

TOTAL NUMBER OF WELLS COMPLETED EACH MONTH IN THE YEARS NAMED.

A. D.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1870	131	131	114	135	164	182	161	156	135	144	112	79	1,644
1871	98	68	70	81	95	150	139	116	125	180	161	181	1,470
1872	48	118	98	122	130	98	131	117	96	101	41	101	1,201
1873	100	105	105	110	106	180	112	116	116	111	108	95	1,364
1874	108	111	108	110	112	113	124	102	108	117	112	116	1,341
1875	184	186	194	180	169	194	208	206	208	215	213	228	2,385
1876	235	236	248	207	200	258	243	274	223	270	278	271	2,943
1877	275	249	296	264	336	598	314	254	332	460	398	391	4,107
1878	279	238	202	411	468	278	210	180	176	232	241	160	3,075
1879	144	136	221	263	395	336	335	280	269	229	225	268	3,101
1880	311	238	358	494	435	315	339	359	359	360	334	309	4,211
1881	232	218	201	310	412	371	348	335	314	302	347	405	3,795
1882	357	359	389	449	457	328	188	248	169	116	150	122	3,332
1883	125	131	141	212	229								

Total for 13 years ended December 31st, 1882 34,029

MAY OFFICIAL QUOTATIONS FOR CRUDE.

THE following table shows opening, highest, lowest, and closing quotations at the Bradford Oil Exchange each day; also average for the month:

	Opening.	Highest.	Lowest.	Closing.	Avg.
1	90	92 $\frac{3}{8}$	89 $\frac{3}{8}$	92 $\frac{3}{8}$	91 $\frac{1}{4}$
2	93 $\frac{1}{4}$	95 $\frac{3}{8}$	92 $\frac{3}{8}$	92 $\frac{3}{8}$	94 $\frac{1}{8}$
3	93	93 $\frac{3}{8}$	89 $\frac{3}{8}$	92 $\frac{3}{8}$	91 $\frac{1}{2}$
4	93 $\frac{1}{4}$	94	91 $\frac{3}{8}$	92 $\frac{3}{8}$	92 $\frac{3}{4}$
5	91 $\frac{3}{8}$	92	90 $\frac{3}{8}$	91 $\frac{3}{8}$	91
6					
7	91 $\frac{3}{8}$	93 $\frac{3}{8}$	91 $\frac{3}{8}$	93	92
8	93 $\frac{3}{8}$	94 $\frac{1}{4}$	92 $\frac{3}{8}$	93	93 $\frac{1}{2}$
9	92 $\frac{3}{8}$	94 $\frac{1}{8}$	92 $\frac{3}{4}$	94 $\frac{3}{8}$	93 $\frac{3}{8}$
10	95 $\frac{1}{4}$	95 $\frac{1}{4}$	93	93	94 $\frac{3}{8}$
11	93 $\frac{3}{8}$	93 $\frac{3}{4}$	92 $\frac{1}{2}$	92 $\frac{3}{8}$	93 $\frac{1}{8}$
12	92 $\frac{3}{4}$	95	92 $\frac{3}{8}$	95	93 $\frac{1}{4}$
13					
14	95 $\frac{3}{8}$	97 $\frac{3}{8}$	94 $\frac{3}{8}$	97 $\frac{1}{2}$	96 $\frac{3}{8}$
15	97 $\frac{1}{2}$	102 $\frac{1}{4}$	96 $\frac{3}{8}$	102	99 $\frac{1}{2}$
16	102	105 $\frac{1}{2}$	100 $\frac{3}{8}$	102	103 $\frac{1}{8}$
17	102	105 $\frac{1}{4}$	100 $\frac{3}{8}$	102 $\frac{1}{8}$	103 $\frac{1}{8}$
18	103	104 $\frac{3}{8}$	102 $\frac{1}{4}$	102 $\frac{1}{2}$	103 $\frac{1}{2}$
19	103	103 $\frac{3}{8}$	102 $\frac{1}{2}$	103	103 $\frac{3}{8}$
20					
21	103 $\frac{1}{4}$	104	102 $\frac{3}{4}$	103 $\frac{3}{4}$	103 $\frac{3}{8}$
22	104 $\frac{1}{4}$	104 $\frac{1}{2}$	103 $\frac{1}{4}$	103 $\frac{3}{4}$	103 $\frac{3}{4}$
23	103 $\frac{1}{4}$	103 $\frac{3}{4}$	100 $\frac{3}{8}$	100 $\frac{7}{8}$	101 $\frac{3}{8}$
24	101	103 $\frac{3}{4}$	101	103 $\frac{1}{4}$	102 $\frac{3}{4}$
25	103 $\frac{1}{2}$	104 $\frac{1}{4}$	102 $\frac{3}{4}$	103 $\frac{3}{4}$	103 $\frac{1}{2}$
26	103 $\frac{3}{4}$	106 $\frac{3}{8}$	103 $\frac{3}{8}$	106 $\frac{1}{4}$	104 $\frac{7}{8}$
27					
28	109	109 $\frac{1}{2}$	107 $\frac{1}{2}$	108 $\frac{3}{8}$	108 $\frac{3}{8}$
29	108 $\frac{3}{4}$	112 $\frac{3}{8}$	107 $\frac{1}{2}$	112	110 $\frac{1}{4}$
30	hol'y				
31	110 $\frac{3}{4}$	120	110 $\frac{3}{4}$	119 $\frac{3}{4}$	115 $\frac{3}{8}$
General Average,					99 $\frac{3}{8}$

MAY OFFICIAL QUOTATIONS FOR REFINED.

THIS table gives the daily quotations for refined oil at the principal foreign as well as domestic ports:

	N. Y.	Philadelphia.	Baltim're.	London.	Bremen.	Antwerp.
	cts.	cts.	cts.	pence.	m'rk.	fr'cs.
1	8	7 $\frac{7}{8}$	7 $\frac{7}{8}$	7 $\frac{1}{4}$	7.40	19
2	8 $\frac{1}{2}$	8	8	6 $\frac{1}{4}$	7.40	19
3	8	7 $\frac{7}{8}$	7 $\frac{7}{8}$	6 $\frac{1}{4}$	7.50	19
4	7 $\frac{7}{8}$	7 $\frac{3}{4}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7.50	19
5	7 $\frac{7}{8}$	7 $\frac{3}{4}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7.04	19
6						
7	7 $\frac{3}{4}$	7 $\frac{5}{8}$	7 $\frac{5}{8}$	6 $\frac{1}{4}$	7.50	19
8	7 $\frac{3}{4}$	7 $\frac{5}{8}$	7 $\frac{5}{8}$	6 $\frac{1}{2}$	7.30	19
9	7 $\frac{3}{4}$	7 $\frac{1}{2}$	7 $\frac{1}{2}$	6 $\frac{1}{2}$	7.50	19
10	7 $\frac{3}{4}$	7 $\frac{3}{8}$	7 $\frac{3}{8}$	6 $\frac{3}{8}$	7.35	18 $\frac{3}{4}$
11	7 $\frac{3}{8}$	7 $\frac{3}{4}$	7 $\frac{3}{4}$	6 $\frac{3}{8}$	7.35	18 $\frac{3}{4}$
12	7 $\frac{3}{8}$	7 $\frac{3}{8}$	7 $\frac{3}{8}$	6 $\frac{3}{8}$	7.35	18 $\frac{3}{4}$
13						
14	7 $\frac{5}{8}$	7 $\frac{1}{2}$	7 $\frac{1}{2}$	6 $\frac{3}{8}$	7.35	18 $\frac{3}{4}$
15	7 $\frac{5}{8}$	7 $\frac{1}{2}$	7 $\frac{1}{2}$	6 $\frac{3}{8}$	7.35	18 $\frac{3}{4}$
16	7 $\frac{3}{8}$	7 $\frac{3}{4}$	7 $\frac{3}{4}$	6 $\frac{3}{8}$	7.35	18 $\frac{3}{4}$
17	7 $\frac{3}{4}$	7 $\frac{5}{8}$	7 $\frac{5}{8}$	6 $\frac{3}{8}$	7.35	18 $\frac{3}{4}$
18	7 $\frac{3}{4}$	7 $\frac{5}{8}$	7 $\frac{5}{8}$	6 $\frac{3}{8}$	7.35	18 $\frac{3}{4}$
19	7 $\frac{3}{4}$	7 $\frac{5}{8}$	7 $\frac{5}{8}$	6 $\frac{3}{8}$	7.45	18 $\frac{3}{8}$
20						

21	7 $\frac{3}{4}$	7 $\frac{3}{4}$	7 $\frac{5}{8}$	6 $\frac{3}{8}$	7.35	18 $\frac{3}{4}$
22	7 $\frac{3}{4}$	7 $\frac{3}{4}$	7 $\frac{5}{8}$	6 $\frac{3}{8}$	7.35	18 $\frac{3}{4}$
23	7 $\frac{3}{4}$	7 $\frac{3}{4}$	7 $\frac{5}{8}$	6 $\frac{3}{8}$	7.35	18 $\frac{3}{4}$
24	7 $\frac{3}{4}$	7 $\frac{3}{4}$	7 $\frac{5}{8}$	6 $\frac{3}{8}$	7.35	18 $\frac{3}{4}$
25	7 $\frac{3}{4}$	7 $\frac{3}{4}$	7 $\frac{5}{8}$	6 $\frac{3}{8}$	7.35	18 $\frac{3}{4}$
26	7 $\frac{3}{4}$	7 $\frac{3}{4}$	7 $\frac{5}{8}$	6 $\frac{3}{8}$	7.35	18 $\frac{3}{4}$
27						
28	7 $\frac{3}{4}$	7 $\frac{3}{4}$	7 $\frac{5}{8}$	6 $\frac{1}{4}$	7.40	18 $\frac{1}{4}$
29	7 $\frac{3}{4}$	7 $\frac{3}{4}$	7 $\frac{5}{8}$	6 $\frac{1}{4}$	7.40	18 $\frac{1}{4}$
30	7 $\frac{3}{4}$	7 $\frac{3}{4}$	7 $\frac{5}{8}$	6 $\frac{1}{4}$	7.40	18 $\frac{1}{4}$
31	7 $\frac{3}{4}$	7 $\frac{3}{4}$	7 $\frac{5}{8}$	7 $\frac{1}{4}$	7.45	18 $\frac{3}{8}$

MAY SALES AND RUNS.

FOLLOWING is a summary of the sales of oil at the Bradford, Oil City, Pittsburg and New York Oil Exchanges during the month of May. Nothing less than 1,000 barrel certificates ever sold; each barrel represents forty-two gallons:

	Bradford.	Pittsburgh.	Oil City.	New York
January, . . .	23,885,000	11,441,000	27,163,000	
February, . . .	19,412,000	9,153,000	22,207,000	
March,	27,467,000	13,208,000	29,448,000	
April,	22,245,000	8,325,000	19,171,000	15,000,000
May,	39,777,000	21,814,000	38,402,000	35,000,000
June,	29,969,000	20,417,000	38,127,000	21,000,000
July,	48,736,000	22,040,000	31,536,000	22,400,000
August,	34,494,000	16,140,000	50,000,000	20,000,000
September, . .	113,402,000	67,220,000	156,450,000	48,500,000
October, . . .	59,797,000	36,586,000	69,737,000	30,200,000
Nov.	105,500,000	76,000,000	164,000,000	91,000,100
Dec.	70,000,000	35,000,000	100,000,000	48,000,000
Jan. 1883 . . .	41,867,000	39,626,000	56,001,110	36,000,000
February . . .	34,043,000	20,391,000	44,000,000	35,000,000
March	63,507,000	51,470,000	107,273,000	58,254,000
April	54,026,000	42,939,000	74,000,000	46,000,000
May	93,999,000	56,500,000	113,000,000	53,000,000

Average daily runs and shipments each month of year to May 31st:

	Total Daily Runs.	Bradford Daily Runs.	Total Daily Shipm'ts.	Bradford Shipm'ts.	Char- ters.
January, . . .	70,401	62,229	55,798	40,864	33,877
February, . . .	81,853	72,825	63,062	47,183	43,075
March,	81,186	65,758	53,489	38,963	41,080
April,	80,158	67,392	54,413	35,662	35,453
May,	83,397	75,472	56,478	43,329	47,220
June,	89,103	78,701	65,266	47,980	54,829
July,	87,948	65,445	61,779	41,013	34,213
August,	111,243	70,646	66,046	42,500	. . .
September, . .	96,079	64,608	66,220	42,000	40,000
October, . . .	85,227	. . .	67,132	41,000	. . .
Nov.	72,852	58,345	46,821	36,100	31,375
Dec.	64,624	49,789	36,140	18,603	42,545
Jan. 1883 . . .	6,665	50,951	43,585	30,321	23,459
February . . .	64,909	51,823	44,083	35,805	25,647
March	64,228	51,005	52,572	39,509	32,091
April	68,839	52,617	63,500	51,868	40,525
May	69,018	52,797	63,965	52,535	49,421

SHIPMENTS.

Shipments of Crude and Refined, in Barrels of 42 Gallons each, reduced to Crude Equivalent out of the Producing Regions in the years named

YEAR.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals.
1859	500	1,200	1,700
1860	63,400	38,400	423,240
1861	76,321	75,282	1,650,133
1862	213,611	190,463	3,141,521
1863	281,340	206,211	3,242,951
1864	201,441	154,765	1,842,001
1865	215,262	204,779	2,100,132
1866	210,016	236,701	3,010,921
1867	280,013	132,807	2,883,210
1868	280,266	265,377	3,482,510
1869	280,210	249,896	3,623,521
1870	519,780	444,254	5,235,931
1871	480,977	410,822	5,664,791
1872	477,940	430,786	5,899,942
1873	959,589	955,443	9,499,775
1874	546,117	602,348	8,821,500
1875	671,066	871,902	8,924,938
1876	871,496	1,190,983	10,164,443
1877	1,205,034	600,019	12,832,578
1878	1,281,410	992,688	13,476,000
1879	1,453,645	1,542,585	15,896,469
1880	1,226,030	1,335,613	15,587,447
1881	2,009,641	2,014,655	20,232,038
1882	1,406,880	1,140,462	22,192,024
1883

Much has been said and many inquiries made regarding the profession of the Oil Region Scout, but in no case has there been a full and satisfactory statement or explanation made. The average scout is a first-class guesser in the first place, and is a good judge of human character. He will study the movements of an operator for hours, and sometimes days, to detect, if possible, symptoms of depression or elevation of spirit. Whichever way this compass seems to direct he feels certain is the correct one for him to assume. If the owner of a new well in a fresh ter-

ritory that promises to be large does not exhibit signs of satisfaction and pleasure he is a character difficult to manage, but it appears that he does not exist. They all do it. It is contrary to the laws of nature to do otherwise. The same is true on the other side—the dry side. No man can swallow a dry hole without undergoing a painful process, which will cause him to exhibit at least depression of spirit. This is one step, therefore, in the route of the active scout. He has, also, a keen sense of action and language, and can satisfy himself of the character of a well

if he can obtain an half hour's conversation with a workman. He fully understands the nature of an oil well, and can tell at sight whether it is productive or otherwise. He will endure all the hardships of loss of sleep and rest, and undergo the presence of heat, hail or mud, to accomplish his designs, which are simply to keep his employer or employers fully and accurately posted regarding the condition of things on his circuit.

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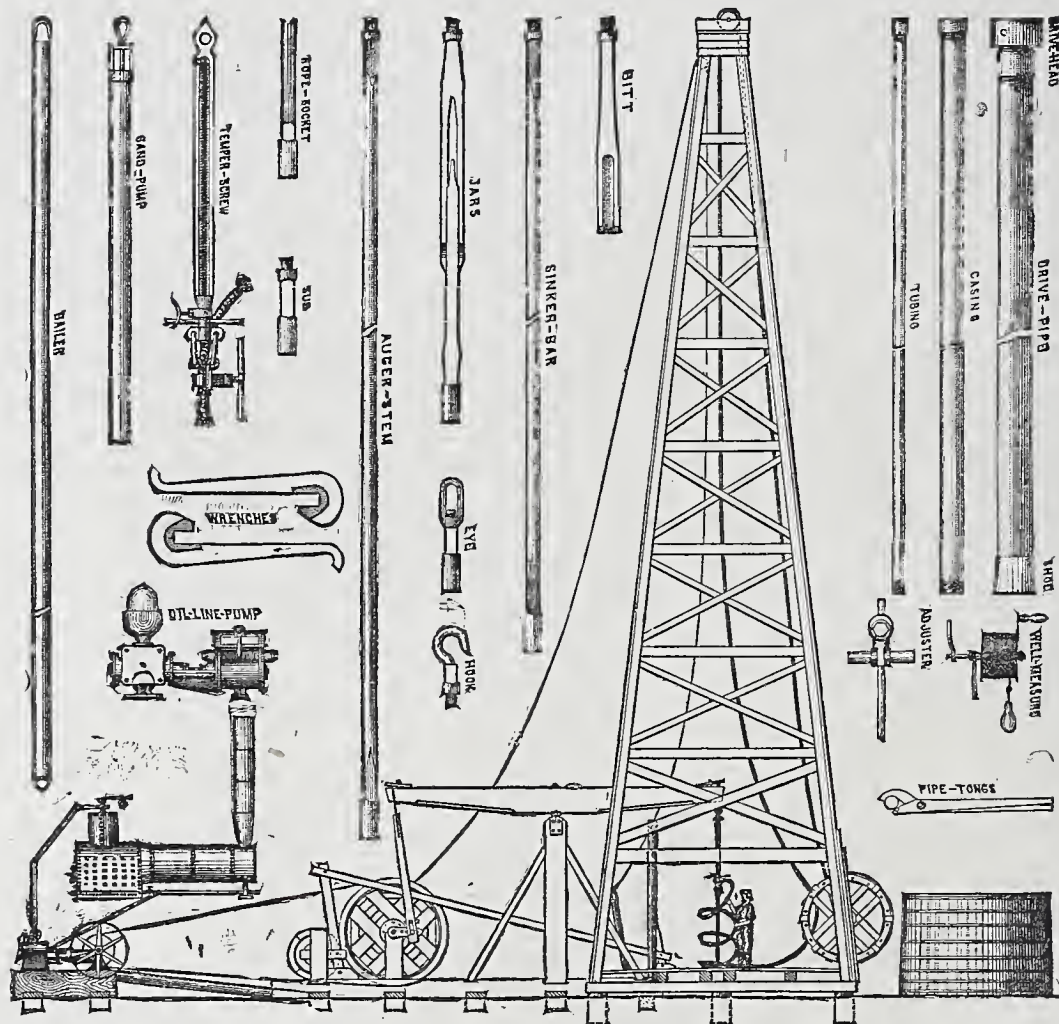
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❖❖❖SUPPLEMENT❖❖❖

On account of omission of printer, the articles entitled THE REFINED MARKET, THE CRUDE MARKET, page 509, and THE CLEARANCES on page 510, were not corrected. In this supplement the errors are rectified.

THE REFINED MARKET.

The price of refined varied but slightly during the month of July. The New York market opened at 7 7/8 cents for the first week and dropped one half cent per gallon at the close of the month. The following is a tabulated statement for each day of the month, showing the price in the principle domestic and foreign markets:

		New York.	Philadelphia.	Baltimore.	London and Liverpool.	Bremen.	Antwerp.
		Cts.	Cts.	Cts.	Pence.	Marks.	Francs.
M	2	7 7/8	7 5/8	8	6 1/4	7 50	18
T	3	7 7/8	7 5/8	8	6 1/4	7 50	18
W	4	7 7/8	7 5/8	8	6 1/4	7 50	18
T	5	7 7/8	7 5/8	8	6 1/4	7 50	18
F	6	7 7/8	7 5/8	8	6 1/4	7 50	18
S	7	7 7/8	7 5/8	8	6 1/4	7 50	18
M	9	7 7/8	7 5/8	8	6 1/4	7 50	18
T	10	7 7/8	7 5/8	8	6 1/4	7 50	18
W	11	7 7/8	7 5/8	8	6 1/4	7 50	18
T	12	7 7/8	7 5/8	8	6 1/4	7 50	18
F	13	7 7/8	7 5/8	8	6 1/4	7 50	18
S	14	7 7/8	7 5/8	8	6 1/4	7 50	18
M	16	7 7/8	7 5/8	8	6 1/4	7 30	17 3/4
T	17	7 7/8	7 5/8	8	6 1/4	7 30	17 3/4
W	18	7 7/8	7 5/8	8	6 1/4	7 30	17 3/4
T	19	7 7/8	7 5/8	8	6 1/4	7 30	17 3/4
F	20	7 7/8	7 5/8	8	6 1/4	7 30	17 3/4
S	21	7 7/8	7 5/8	8	6 1/4	7 30	17 3/4
M	23	7 7/8	7 5/8	8	6 1/4	7 45	18 1/4
T	24	7 7/8	7 5/8	8	6 1/4	7 45	18 1/4
W	25	7 7/8	7 5/8	8	6 1/4	7 45	18 1/4
T	26	7 7/8	7 5/8	8	6 1/4	7 45	18 1/4
F	27	7 7/8	7 5/8	8	6 1/4	7 45	18 1/4
S	28	7 7/8	7 5/8	8	6 1/4	7 45	18 1/4
M	30	7 7/8	7 5/8	8	6 1/4	7 45	18 1/4
T	31	7 7/8	7 5/8	8	6 1/4	7 45	18 1/4

The quotation for Antwerp is the price per hundred kilogrammes. A kilogramme is equal to about two pounds, so that one gallon is nearly equivalent to three kilogrammes. The mark is worth twenty-four cents and the franc eighteen and six-tenths cents of our money.

THE CRUDE MARKET.

THE following are the official quotations showing the opening, highest and lowest prices of United Pipe Line certificates at the Bradford Exchange during July:

		Opened.	Highest.	Lowest.	Closing.
M	2	116 3/8	116 3/8	115 1/8	115 3/8
T	3	115 1/4	115 1/4	114	114 3/8
F	5	114 1/4	114 1/4	111	112 7/8
S	6	113 3/4	114 1/4	110 3/4	114 1/4
	7	114 1/4	115	113 1/8	114 3/8
M	9	114 1/4	114 3/4	113 1/2	114
T	10	114 1/4	114 1/4	113 1/4	113 1/4
W	11	113	113	111	111 1/4
T	12	110 5/8	112 3/8	108 3/4	109
F	13	109	109 3/4	106 3/4	108
S	14	108 1/4	108 3/4	103 3/4	104 1/2
M	16	104 1/2	104 5/8	100 3/4	102 3/4
T	17	103	104 1/4	101 1/2	101 3/4
W	18	101 1/8	101 3/8	97 3/8	100 3/8
T	19	99 3/4	101 3/4	99 1/4	101 3/8
F	20	103	106	101 3/4	106
S	21	106 1/4	106 1/2	104 3/8	104 5/8
M	23	104	104	101 3/4	102 1/8
T	24	101 7/8	103 3/4	101 3/4	102 3/8
W	25	102 1/4	104 3/8	102 3/4	104 3/8
T	26	105	108 5/8	105	108 5/8
F	27	109	112	108	108 3/8
S	28	108 3/4	109 3/8	106 3/8	107
M	30	107	108 1/4	105 7/8	107 1/2
T	31	107 3/4	109 1/2	106 1/4	106 1/2

THE CLEARANCES.

The following figures are from the records of the Clearing House and represents the total clearnces at the four principal exchanges, in barrels.

	July.	June.
Bradford (two Exchanges)	149,794,000	188,718,000
Oil City	229,248,000	254,120,000
New York	146,152,000	120,984,000
Pittsburgh	114,708,000	125,880,000
Total	639,902,000	689,702,000

THE PETROLEUM AGE.

VOL. II.

BRADFORD, PA., AUGUST, 1883.

No. 8

THE RELATION OF BANKERS AND PRODUCERS.

Principal Banks of the Oil Regions—Bank Failures Since 1876—Absorption of Pipe Lines, and Issue of Uniform Certificates—Coming in of the Tidewater—Certificates as Collateral—Commercial Honor Among Brokers—The Clearing House System—Growth of the Speculative Trade.

BY C. F. ALLEN.

THE banker usually appears in a prospective oil field at about the time when other adventurers are abandoning themselves to the excitement of wild-catting and drilling in a territory without a map.

He does not come always loaded with cash; in most cases the banks of the oil country have either been founded upon small capital, or by those who have become wealthy in producing. This fact is partly a necessity, for the reason that outside capital is extremely cautious in dealing with producers of petroleum, and, until lately, deaf to the merits of crude certificates. With ordinary care and judgment, the banker rarely fails to build up a good business among his fellow producers to last as long as the territory continues productive and operations active. But in this, as in all matters connected with petroleum, that stability is endangered by the active and often penniless wild-catter, who transforms the growing town into a deserted camp. Yet the failures have been remarkably few, and in the Bradford field but one bank, at Coleville, has closed its doors. The deposits were only \$3,500, and we hope to be excused for naming it.

The principal banks of the oil regions are as follows:

At Oil City, First National, Oil City Trust Co., F. W. Mitchell & Co., Reynolds, Lamberton & Co., Oil City Savings Bank.

At Franklin, First National, Savings Bank, Exchange, International and Lamberton Savings Bank.

At Titusville, Second National, Hyde National, Commercial National and Roberts & Son.

At Bradford, First National, Bradford National, Tuna Valley, Exchange, and Dow, Fullagar & Coleman.

Since 1876 the following banks have failed: Producers' and Manufacturers' Bank and Exchange Bank, of Titusville; First National Bank of Butler; Fairview Deposit Bank; Edenburg Bank; Parker Savings Bank.

The first named paid its depositors in full, and marks the period of the collapse of the Producers' Transportation Co., an event following closely upon a great over-issue of certificates, and producing widespread loss and suffering. In 1876 several pipe lines were in the field, all supposed to be in the interest of the producer, barring the United Line, owned by the Standard. The next three years witnessed the gradual absorption of all pipe line interests by the Standard, with a very few local exceptions. The general system of lines thus merged became known as the United Pipe Lines, with main office at Oil City.

The producer now found himself, through over-production, entirely at the mercy of the Standard, and, although it in no wise checked his thirst for flowing wells, often bore the grinding exactions of the great monopoly. But in place of a variety of oil-representing certificates, of different degrees of reliability, and so various as to render them all liable to distrust, the Standard gave the trade a new and uniform certificate, placed the different producing regions upon the same basis, and rendered them tributary to but one great stock account, that of the United Pipe Line. The advantage of this was beyond estimation, and in a great measure has offset less satisfactory phases of Standard rule.

The Tidewater Pipe Co., which appeared about 1879, is the only other line issuing certificates known to bankers, and is based upon the general plan of the United Lines, in the matter of stocks and issue. It holds 2,000,000 barrels crude against some 34,000,000 barrels held by the United Line, and the certificates of the latter are those quoted in market reports.

These certificates, which form the basis and chief source of profit of local banking, are almost invariably for 1,000 barrels of oil. They are or-

ders on the United or Tidewater Line for the surrender of 1,000 barrels of crude Petroleum at any of the various points of delivery named, upon payment of 20 cents per barrel pipeage to the line for transportation from the wells. From this it will be seen that the lines take the oil from the producer, and wait for the consumer to pay for the work. Certainly the 20 cents per barrel could be exacted, and is not, every producer selling his oil as if the lines had no claim against it. Every barrel of oil wasted by leakage, bursting of tanks, or in evaporation, is a loss of 20 cents to the transporters. The gross stocks of crude are 36,000,000 barrels, upon which \$7,200,000 must be paid at the time of delivery. Why is this not collected in advance?

It is not on account of any statute existing, because laws are easily put aside. The question is of sufficient interest to be discussed separately at another time.

An oil certificate can remain outstanding no more than six months, without incurring a penalty of \$1.00 for every day thereafter. A regular charge of \$12.50 per month is made against every 1,000 barrels remaining in the lines, payable at least every six months. One-fourth of one per cent. ($\frac{1}{4}$ per cent.) is deducted every month for shrinkage and evaporation. A 1,000-barrel certificate returned six months after date is only worth 985 barrels and must pay storage as stated. The six months' limit is necessary for the protection of those who do not understand this steady loss in value, and while it makes the revenue of the pipe lines uniform and certain, it gives them complete information as to the whereabouts of the certificates and the speculators holding them. Those owning tanks in custody of the lines can have certificates issued free of storage.

The accuracy of the stock report of the United Pipe Line has been sometimes questioned, and is not to be verified by any means within the producers' power. It is, however, duly and regularly issued, under oath, and in such a detailed manner as to remove any reason for doubt. It is accepted by all interested, and the opinion of others is not material. The President of the United Pipe Line has invited the different exchanges to send a committee, who might verify and participate in the annual inspection of stocks on September 1st, 1883.

We can now see that the producer is enabled to borrow of the banks, using his certificates as collateral. Purchasers of oil and brokers often

hold large amounts for speculative purposes, and their requirements cause most of the work and yield the greatest revenue.

The needs of the speculative oil trade have been unceasing and always growing. In many instances they have been out of reason and burdensome. The demands of a broker are often based more upon the volume of business transacted by him, than upon the balances of his bank account. It will generally be found that the bank having the greatest number of such accounts will do vastly more work and at best show very little proportionate increase of deposits. Not that their customers are without means, but the call for money is so great that a steady balance in the bank seems a waste of capital. Since the establishment of the clearing house system, in November, 1882, banking has been rendered safer and easier. Before that time it was customary for each broker to give one check or more to every one from whom he bought. The transactions of a broker in one day, after settling many deals by paying or taking differences, would often require the issue of from twenty to fifty checks, and the deposit of as many more. An account exhibiting a balance of a few hundred dollars in the morning might show at night transactions amounting to fifty thousand dollars, involving the certifying of many checks, and the collection of an equal number. In such cases the banks took the risks incident to certifying upon the verbal assurance of their customers. A sudden change in prices was always an element of danger.

It is complimentary and just to the brokers and others asking so much, to say that the banks have never been imposed upon in these matters. The assertion may be modified by some obscure and petty transaction, but it is safe to say that an unvarying rule among brokers is that in case of failure they do not betray the personal confidence of a cashier or other bank officer.

This system of certifying checks upon the assurance that they would not be exchanged except for oil, is mentioned because it is a striking example of what a capitalist would not do until thoroughly soaked in crude. It is done away with by the clearing house in each exchange, and the methods and chances of Bradford and Oil City banking may now be generally likened to those throughout the world. The changing nature of oil values is the one element of risk, and is always to be guarded against. In this respect the conservative habits of metropolitan

banks have proved to be essential to those who accept as security a commodity whose shifting prices they cannot in some measure predict.

In November, 1882, a gentleman from Bradford remarked, as he stood upon the floor of the New York Petroleum Exchange, that he had been trying to get money to buy 100,000 barrels of oil. He could have the money, but only 95 cents per barrel would be advanced. The quotation at noon that day was \$1.14 $\frac{1}{4}$, and the caution of the New Yorkers seemed out of reason, to him. The close at 4 p. m. was \$1.04 $\frac{1}{2}$, and the next day, one the lambs will long remember, the market broke to 86 cents and closed at 96 cents. It is interesting to note that the panic of this time called the attention of New York to oil as a neglected element of speculation, and from causes in many ways akin to those which lead to such adventures as Capt. Webb's, the dangers of the trade speedily reinforced the small and somnial band who daily followed the lead of Oil City prices. The Rip Van Winkles had but a few months to sleep to find a transformation that made them rub their eyes, and they soon saw the devil rolling ninepins amongst them as Hendrick Hudson rolled upon the Kaaterskill.

The growth of marginal dealings in Petroleum in general will be easily seen from the following extracts from the *Bradford Era*:

OIL CITY MARKET.

OIL CITY, January 30, 1880.

The market was excited and advancing all day, with a great stir at the close. Opened at \$1.08 $\frac{3}{4}$, advanced and closed firm at \$1.11 $\frac{1}{2}$. Sales, 229,000 barrels.

Compare this with any report of to-day. The *Era* of same date says:

"The [Bradford] sales during the final hour were very large and in heavy blocks, aggregating 80,000 barrels. Two 20,000 barrel lots and one 15,000 batch were among the principal transactions effected. The total sales of the day were not far from 150,000 barrels."

Oil City clearances have amounted in one day in 1883 to 10,000,000 barrels, twice the actual sales, however.

In January, 1880, the banks of Bradford and Oil City were about the same in number and ownership as at present. Many of these, from their large correspondence, and all for their promptness in remitting collections, gradually acquired an outside reputation which enabled them to find sources of new capital, always sorely needed to carry the accretion of crude certificates.

In 1876, when the gross stocks were 3,000,000 barrels, and a crude certificate was a curiosity to the cheese-pressing producers who were boldly obtaining northern territory to sell to the

veterans, it is safe to say that no person could have obtained a loan on oil, whose note would not have been as readily accepted without. Gradually the situation changed. The Olean, Cuba and Jamestown bankers began to find it convenient to fill their line of discounts with notes secured by a collateral in which they were nearly all interested, in the Bradford field. The Bank of Hornellsville, largely enriched by the fortunes received by its stockholders from the sale of valuable McKean County lands, was one of the first to look upon certificates as safe. The pressure of the small army of country bankers began to take effect in higher circles, and, as a matter of accommodation to them, the city banks departed from their rules and opened the way to the great stream of yellow paper which has hardly yet begun to ebb.

To be Continued.

SOLIDIFIED PETROLEUM.

The project of solidifying Petroleum, for the purpose of transporting it more cheaply and conveniently, created considerable enthusiasm at one time in the Russian papers. A factory is now in operation at Astrakhan on the Caspian sea. It is conducted by M. Ditman, and the method employed is described as follows:

"The kerosene is boiled in large cauldrons together with a certain quantity of soap, and the boiling is continued until as much of the liquid portion as possible is evaporated. The boiling mass is then poured into iron tanks or reservoirs to cool down; the mixture becomes solid and of such consistency as to be easily cut into any sized pieces. When required for use the substance is readily liquified by the application of heat."

It is claimed that refined Petroleum treated in this manner can be packed in boxes or sewn up in sacks, thus doing away with bulky casks and expensive cases, and avoiding all dangers from leakage and explosion. A consequent reduction in freight rates, custom duties, etc., is claimed, thus cheapening the cost of Russian kerosene to the European consumer.

The export of this solidified Petroleum will begin this season. It will be taken through Batoum on the Baku and Batoum Railway, and it is estimated that 1,000,000 poods (more than 15,800 pounds) will be shipped before the close of the year.

M. Ditman is stated to have patented his invention in Russia, France, England and America.—*The British Ironmonger.*

FIELD OPERATIONS SUMMARIZED.

Wells Completed.

ALLEGANY.

Division of Field.	Wells.	JUNE. Prod'n.	Dry.	Wells.	JULY. Prod'n.	Dry.
Scio	14	197	2	25	295	5
Alma	31	376	.	22	245	1
Wirt	2	5	1	2	25	.
Bolivar	13	132	.	24	192	1
Clarksville	8	105	.	6	68	.
Genesee	26	326	1	31	342	.
Totals	94	1141	4	110	1167	7

BRADFORD FIELD.

Division of Field.	Wells.	JUNE. Prod'n.	Dry.	Wells.	JULY. Prod'n.	Dry.
E. & W. Branches	19	250	.	30	376	1
Kendall Creek	16	172	.	7	92	.
Foster Brook	7	74	.	6	55	.
Four Mile	6	75	.	6	120	.
Indian & Meeks Cr'k	6	61	.	5	54	.
Cole Creek . . . . .	.	.	.	5	150	.
Kinzua	1	15	.	2	35	.
Miscellaneous . . . . .	.	.	.	2	20	.
Total	55	647	.	63	902	1

WARREN AND FOREST.

District	Wells.	JUNE. Prod'n.	Dry.	Wells.	JULY. Prod'n.	Dry.
Glade	4	10	2	10	50	3
Clarendon	11	66	.	13	113	2
Tiona	11	81	.	12	83	1
Cooper	19	1085	2	16	447	3
Balltown	5	1055	1	4	975	1
Miscellaneous	2	10	1	.	.	.
Total	52	2307	6	55	1668	8

LOWER COUNTRY.

District	Wells.	JUNE. Prod'n.	Dry.	Wells.	JULY. Prod'n.	Dry.
Venango	8	23	4	12	121	2
Clarion	3	12	.	5	18	1
Butler and Armstrong	11	252	3	7	76	1
Total	19	287	7	24	215	4

GRAND SUMMARY.

District.	Wells.	JUNE. Prod'n.	Dry.	Wells.	JULY. Prod'n.	Dry.
Allegany	94	1141	4	110	1167	7
Bradford	55	647	.	63	902	1
Warren and Forest	52	2307	6	55	1668	8
Lower Field	19	287	7	24	215	4
Total	220	4382	17	252	3952	20
June Total				220	4382	17
Difference				32	430	3

Rigs Up and Building.—Wells Drilling.

ALLEGANY FIELD.

Division of Field	JULY 1, 1883. Rigs.	Drilling.	Total.	AUG. 1, 1883. Rigs.	Drilling.	Total.
Scio	23	23	46	20	29	49
Alma	23	18	41	31	21	52
Wirt	3	1	4	2	4	6
Bolivar	18	33	51	19	24	43
Clarksville . . . . .	.	2	2	5	3	8
Genesee	32	26	58	28	17	45
Miscellaneous . . . . .	.	.	.	.	3	3
Total	99	103	202	105	101	206

BRADFORD FIELD.

Division of Field.	JULY 1, 1883. Rigs.	Drilling.	Total.	AUG. 1, 1883. Rigs.	Drilling.	Total.
E. & W. Branches	23	25	48	23	23	46
Kendall Creek	11	7	18	12	9	21
Foster Brook	5	6	11	7	6	13
Four Mile	9	5	14	11	6	17
Indian Creek	16	9	25	21	11	32
Cole Creek	3	2	5	2	1	3
Kinzua	2	3	5	8	1	9
Miscellaneous . . . . .	.	.	.	5	4	9
Total	69	57	126	89	61	150

WARREN AND FOREST.

Division of Field.	JULY 1, 1883. Rigs.	Drilling.	Total.	JULY 1, 1883. Rigs.	Drilling.	Total.
Glade	1	3	4	4	3	7
Clarendon	4	14	18	10	10	20
Tiona	7	12	19	8	8	16
Cooper	15	17	32	17	12	29
Balltown	11	7	18	9	14	23
Total	38	53	91	48	47	95

LOWER COUNTRY.

County.	JULY 1, 1883. Rigs.	Drilling.	Total.	AUG. 1, 1883. Rigs.	Drilling.	Total.
Venango	6	7	13	10	9	19
Clarion	2	2	4	2	5	7
Butler & Armstrong	9	11	20	16	19	35
Total	17	20	37	28	33	61

GRAND SUMMARY.

Field.	JULY 1, 1883. Rigs.	Drilling.	Total.	AUG. 1, 1883. Rigs.	Drilling.	Total.
Allegany	99	103	202	105	101	206
Bradford	69	57	126	89	61	150
Warren & Forest	38	53	91	48	47	95
Lower Country	17	20	37	28	33	61
Total	223	233	456	270	242	512
Increase				47	9	56

Statistical History of Balltown and Cooper Districts.

The explosive character of a white sand field, its rapid rise, and, sometimes, sudden fall, cause it to be watched with absorbing interest by the men who have cash anchored in certificates or production. Since the closing days of the summer of 1882, that tireless band of oil investigators, commonly called scouts, have carefully scanned the Balltown and Cooper sections and faithfully noted every change which has taken place in their outlines or yield. A number of the weekly gauges which have been taken by these persevering gentlemen, are tabulated below. They tell the story of the development on the line of least resistances.

BALLTOWN PRODUCTION.

Date.	No. Wells.	Barrels.	Rigs.	Drilling.	Total.
April 28 . . . . .	.	983	10	10	20
May 8 . . . . .	.	970	.	.	18
May 11	11	1406	9	8	17
May 19	13	1146	7	8	15
May 25	14	1065	7	12	19
June 1	17	1689	7	8	15
June 9	17	1800	5	9	14
June 15	18	1851	5	10	15
June 22	20	2925	10	8	18
June 29	22	2499	11	7	18
July 6	23	2131	11	9	20
July 14	24	2063	7	13	20
July 21	25	2223	8	13	21
July 27	25	1983	9	14	23
August 4	31	3285	13	8	21
August 11	34	3586	12	7	19
August 17	35	4811	11	10	21
August 25	36	3328	11	12	23

COOPER PRODUCTION.

Date.	No. Wells.	Barrels.	Rigs.	Drilling.	Total.
February 28	16	1599	.	.	.
March 10	22	3938	.	.	.
March 15	25	1941	.	.	.
March 21	25	1500	.	.	.
March 23	26	2403	.	.	.
March 27	27	2355	.	.	.
March 31	32	3939	.	.	.
April 11	37	4624	19	22	41
April 19	46	3234	14	28	42
April 28	47	4944	13	26	39
May 3	51	4224	.	.	.
May 11	60	4326	14	18	32
May 19	63	4632	17	22	39
May 25	68	4007	14	19	33
June 1	75	5011	13	20	33
June 9	78	4881	19	17	36
June 15	82	4140	15	22	37
June 22	85	4032	13	18	31
June 28	85	3735	15	17	32
July 6	90	3994	15	11	26
July 13	93	3306	18	11	29
July 20	97	3401	21	8	29
July 27	98	3714	17	12	29
August 4	99	3129	20	15	35
August 10	101	3250	18	17	35
August 17	102	3279	16	19	35
August 24	106	3407	14	16	30

STOCKS AT WELLS.

A report of stocks at wells furnishes the best means of arriving at the daily average production of an oil field. The larger the number of wells heard from the more nearly correct are the conclusions arrived at through the figures. During the past two months one of the representatives of THE AGE has been compiling a stock report with gratifying success. The following are the reports which have already been forwarded to all producers who took the trouble to send in their figures.

STOCKS AT WELLS JULY 1 AND AUGUST 1, 1883.

Reports were received showing the condition of stocks at 6,671 Bradford wells August 1st. At 166 of these wells, the stocks for August 1st only were reported, and at 467 wells the increase or decrease was given. Figures showing gross stocks at 6,028 wells July 1st, and at 6,038 wells August 1st, were forwarded. A comparison could be made between figures indicating the condition of stocks at 6,505 Bradford wells. The gross stocks at the 6,028 wells July 1st, were 422,832 barrels, an average per well of 70.14, and at the 6,038 wells the stocks August 1st were 396,275 barrels, an average of 65.63 barrels. These wells show a decrease per well during July of 4.51 barrels. The above figures are tabulated as follows:

Date	No. Wells.	Stocks.	Av'g per Well
July 1	6,028	422,832	70.14
August 1	6,038	396,275	65.63
	6,038	Decrease 26,557	4.51
	467	4,587	
Total	6,505	31,144	

The average decrease at each of the 6,505 wells was 4.88 barrels per well. The number of wells connected with the pipe lines in the Bradford field August 1st was 12,450. Hence the total decrease for the field was 60,756 barrels, or a daily decrease of 1,959 barrels. An estimate on Bradford's production for July is made as follows:

Average daily pipe line runs	Barrels.
Daily decrease of stocks	36,489
Estimated production	1,959
Estimated production, June	34,530
Decrease	35,279
	749

While the volume of new work increased in the Bradford field, old wells were torpedoed, and wells which had ceased to flow were changed to pumpers, all available figures go to show that the production underwent a decline. The average daily yield of the Bradford field for the month of August, 1881, as demonstrated by the report of the Producers' Committee, was 69,617 barrels, double the amount which is being brought from the great northern basin to-day.

ALLEGANY FIELD.

Want of time prevented the compiler from making a canvass of the Allegany field for the stock report. The following report was based on the figures received:

Producers reported stocks from 736 Allegany wells July 1st, and 748 August 1st. The average per well July 1st was 65.05, and 58.78 August 1st. There were 2,597 wells in the field July 1st, and 2,700 August 1st. The above figures are tabulated as follows:

Date.	No. Wells.	Average Stocks per well.	Gross Stocks.
July 1	2,597	65.05	168,935
August 1	2,700	58.78	158,706
Decrease		6.27	10,229

According to the above the total decrease in stocks in the field during July was 10,229 barrels, an average per day of 330 barrels. The above figures are tabulated as follows:

Average daily pipe line runs	12,381
Decrease stocks	330
Estimated production	12,051

Twenty-seven per cent. of the whole number of wells in the field do not afford data comprehensive enough for a safe estimate on the production of the field. The official figures which have been given to the public through the oil region press show that the decline in stocks in the Allegany field during July was 36 barrels. According to the figures the average daily production for July was 12,345. During June and July it has ranged between 12,000 and 12,500 barrels.

FOREST, WARREN AND LOWER COUNTRY.

Stocks were reduced in the Cherry Grove section during July. At 75 wells there were 9,728 barrels in stock July 1st, and at 73 wells the tanks contained 7,051 barrels August 1st, an average decrease per well during July of 33 barrels.

Reports from 73 wells in the Cooper Hill District gave an average per well July 1st of 375 barrels and 338 barrels August 1st.

At 81 wells scattered over Warren, Clarion, Butler, and Armstrong counties, there were 3,504 barrels of oil July 1st, and 3,624 barrels August 1st.

In order that it may be easily preserved the June report is published.

STOCKS AT WELLS JUNE 1 AND JULY 1, 1883.

Reports were received showing the condition of stocks at 5,817 Bradford wells July 1. Out of this number a comparison could be made between stocks at 5,730 wells June 1 and July 1. Parties reported gross stocks at 4,069 wells June 1, and 4,086 wells July 1. The gross stocks at

the 4,069 wells June 1, were 328,418 barrels an average per well of 80.71, and at the 4,086 wells, 295,626 barrels, or an average of 72.10. At 1,644 wells, only the increase or decrease of stocks was reported. These 1,644 wells showed a decrease of 13,430 barrels.

The above figures are tabulated as follows :

No. of Wells.	Decrease Stocks.
4,086	32,792
1,644	13,430
5,730	46,222

Average decrease about 8 7-100 barrels per well in June. There were 12,400 wells in the Bradford district July 1. Hence total decrease of stocks Bradford field was 100,068 barrels, or 3,335 barrels daily.

	Barrels.
Average pipe runs, Bradford field, June	38,614
Decrease in stocks at wells	3,335
Estimated production	35,279

In the above estimate it is presumed that the condition of stocks was the same at wells from which stocks were not reported.

ALLEGANY FIELD.

The stocks at the wells of the large companies in the Allegany field were greatly reduced during June. The owners of 602 wells reported 54,027 barrels of oil on hand June 1; the same parties had 616 wells July 1st, at which there were 40,484 barrels. The average per well June 1st was 89 74-100 barrels, and July 1st 65 72-100, a reduction per well of 24 barrels. There were about 2,507 wells in the field June 1, and 2,597 July 1st.

From the above the following statement is made :

Time.	No. Wells.	Average Stocks. per Well.	Total Stocks.
June 1	2,507	89 74-100	224,978
July 1	2,597	65 72-100	170,675
		24 2-100	54,303
			Barrels.
Average daily decrease in June			1,810
Average daily runs			13,499
Production			11,689

The number of Allegany wells heard from and the result deduced was below the June production. The June production found its limits between 12,000 and 12,500 barrels.

FOREST AND WARREN.

Stocks were reduced on Cooper Hill during June. Reports showed 29,458 barrels of oil at 65 wells June 1, and 26,570 barrels at 76 wells July 1. These figures show a decrease per well of 104 barrels during June.

At 67 Cherry Grove wells there were 10,045 barrels of oil on hand June 1, and 8,502 barrels July 1. The average per well June 1st was 149 9-10 barrels, and 126 9-10 July 1st, a decrease of 13 barrels.

A valuable feature of a stock report is the showing of the amount of gross stocks at wells. Reports from 6,038 Bradford wells gave an average per well in gross stocks August 1st of 65 63-100 barrels per well. The average producer, unless he wanted to get a pipe line gauger to run the oil, would say that twenty barrels to the well of this oil was not merchantable. How low stocks can be run in the Bradford field, or where the working point in handling oil is, will depend on the extent to which tankage in the field is reduced. The two lines are disposed to be generous in furnishing pipe and any producer can now have a little pipe line of his own by applying to the gentlemen who make a business of moving crude. It would seem that stocks are fast approaching that point from which they cannot be materially lowered. The average gross stocks per well at 748 Alleghany wells August 1st was 59 barrels. At one time the stocks at wells in the Alleghany field aggregated about 500,000 barrels.

We hope to make the stock report so comprehensive that by the mathematical theory of probabilities it can be demonstrated that the conclusions drawn are correct beyond a doubt.

The Franklin Producers' Pipe Line Company, limited, recently organized at Franklin, Pa., has contracted for sixteen and a half miles of two and three inch pipe, one 20,000 barrel and four 1,000 barrel tanks. The stock has all been taken and it is expected that everything will be in readiness for running oil within forty days. The following officers have been elected: President, Edward D. Yates, oil producer, Franklin; Treasurer, Wm. J. Bleakley, banker, Franklin; Secretary, Joseph Reisenman, druggist, Franklin; Managers, Edward D. Yates, Col. John H. Cain, Wm. J. Bleakley, Joseph Reisenman, Capt. Wesley C. Howe, W. T. Baum and Thomas Algeo.

STOCKS ABROAD.

REPORTS from London, Trieste and the seven principal continental sea ports are summarized in the following statement :

	Aug. 4, 1883.	Aug. 4, 1882.
London Total Stocks	499,517	411,199
Trieste do do	64,273	137,068
Continental Ports Total Stocks	2,107,887	2,087,614
Total	2,671,677	2,635,881
Increase in Stocks, barrels	35,796	

A detailed statistical table giving the stocks on hand, the stocks in vessels on the ocean and the amount unloading from vessels at the different ports is appended, which shows at a glance,

the condition of affairs abroad and the increase or decrease as compared with the corresponding period of 1882.

STOCKS IN FOREIGN PORTS AUGUST 4, 1883.

	Stocks		Stocks Afloat		Unloading		Grand Total Stocks		Receipts		Shipments	
	1882.	1883.	1882.	1883.	1882.	1883.	1882.	1883.	1882.	1883.	1882.	1883.
London	296,999	412,774	37,700	56,243	76,500	30,500	411,199	499,517	448,374	445,479	238,463	275,551
Trieste	45,540	18,126	71,328	23,647	20,200	22,500	137,068	64,273	114,355	41,934	110,788	91,672
Bremen	713,470	937,443	93,127	24,525	23,000	37,000	829,597	998,968	739,713	633,139	416,001	451,837
Hamburg	337,277	333,036	120,757	77,565	23,000	29,500	481,034	440,101	597,090	541,382	312,823	407,067
Antwerp	236,451	254,320	71,914	38,543	62,000	63,500	379,365	356,363	356,879	411,034	350,898	343,566
Rotterdam	76,025	77,947	31,899	14,620			107,924	92,567	153,074	103,787	91,307	101,021
Amsterdam	49,418	64,285	4,469	12,213	20,000	10,000	73,887	86,498	102,770	123,916	94,268	109,032
Stettin	108,521	74,788	41,621	10,528	18,900	31,000	169,042	116,316	167,129	106,979	87,704	65,322
Dantzic	32,165	13,645	17,000	3,429	6,600		55,765	17,074	32,705	29,118	44,029	38,094
	1,553,327	1,755,464	380,787	181,423	153,500	171,000	2,087,614	2,107,887	2,149,360	1,949,355	1,397,030	1,515,939

THE REFINED MARKET.

The price of refined varied but slightly during the month of July. The New York market opened at 7 $\frac{7}{8}$ cents for the first week and dropped one half cent per gallon at the close of the month. The following is a tabulated statement for each day of the month, showing the price in the principle domestic and foreign markets:

	New York.	Philadelphia.	Baltimore.	London and Liverpool.	Bremen.	Antwerp.
	Cts.	Cts.	Cts.	Pence.	Marts.	Francs.
M 2	7 $\frac{7}{8}$	7 $\frac{5}{8}$	8	6 $\frac{1}{4}$	7 50	18
T 3	7 $\frac{7}{8}$	7 $\frac{5}{8}$	8	6 $\frac{1}{4}$	7 50	18
W 4	7 $\frac{7}{8}$	7 $\frac{5}{8}$	8	6 $\frac{1}{4}$	7 50	18
T 5	7 $\frac{7}{8}$	7 $\frac{5}{8}$	8	6 $\frac{1}{4}$	7 50	18
F 6	7 $\frac{7}{8}$	7 $\frac{5}{8}$	8	6 $\frac{1}{4}$	7 50	18
S 7	7 $\frac{7}{8}$	7 $\frac{5}{8}$	8	6 $\frac{1}{4}$	7 50	18
M 9	7 $\frac{7}{8}$	7 $\frac{5}{8}$	8	6 $\frac{1}{4}$	7 50	18
T 10	7 $\frac{7}{8}$	7 $\frac{5}{8}$	8	6 $\frac{1}{4}$	7 50	18
W 11	7 $\frac{7}{8}$	7 $\frac{5}{8}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 50	18
T 12	7 $\frac{7}{8}$	7 $\frac{5}{8}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 50	18
F 13	7 $\frac{7}{8}$	7 $\frac{5}{8}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 50	18
S 14	7 $\frac{7}{8}$	7 $\frac{5}{8}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 50	18
M 16	7 $\frac{3}{4}$	7 $\frac{1}{2}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 30	17 $\frac{3}{4}$
T 17	7 $\frac{3}{4}$	7 $\frac{1}{2}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 30	17 $\frac{3}{4}$
W 18	7 $\frac{3}{4}$	7 $\frac{1}{2}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 30	17 $\frac{3}{4}$
T 19	7 $\frac{3}{4}$	7 $\frac{1}{2}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 30	17 $\frac{3}{4}$
F 20	7 $\frac{3}{4}$	7 $\frac{1}{2}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 30	17 $\frac{3}{4}$
S 21	7 $\frac{3}{4}$	7 $\frac{1}{2}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 30	17 $\frac{3}{4}$
M 23	7 $\frac{3}{4}$	7 $\frac{1}{2}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 45	18 $\frac{1}{4}$
T 24	7 $\frac{3}{4}$	7 $\frac{1}{2}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 45	18 $\frac{1}{4}$
W 25	7 $\frac{3}{4}$	7 $\frac{1}{2}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 45	18 $\frac{1}{4}$
T 26	7 $\frac{3}{4}$	7 $\frac{1}{2}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 45	18 $\frac{1}{4}$
F 27	7 $\frac{3}{4}$	7 $\frac{1}{2}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 45	18 $\frac{1}{4}$
S 28	7 $\frac{3}{4}$	7 $\frac{1}{2}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 45	18 $\frac{1}{4}$
M 30	7 $\frac{3}{4}$	7 $\frac{1}{2}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 45	18 $\frac{1}{4}$
T 31	7 $\frac{3}{4}$	7 $\frac{1}{2}$	7 $\frac{3}{4}$	6 $\frac{1}{4}$	7 45	18 $\frac{1}{4}$

The quotation for Bremen is the price per hundred kilogramme. A kilogramme is equal to about two pounds, so that one gallon is nearly equivalent to three kilogrammes. The mart is worth twenty-four cents and the franc eighteen and six-tenths cents of our money.

THE CRUDE MARKET.

THE following are the official quotations showing the opening, highest and lowest prices of United Pipe Line certificates at the Bradford Exchange during July:

		Opened.	Highest.	Lowest.	Closing.
M 2		116 $\frac{3}{8}$	116 $\frac{3}{8}$	115 $\frac{3}{8}$	115 $\frac{3}{8}$
T 3		115 $\frac{3}{4}$	115 $\frac{3}{4}$	114	114 $\frac{3}{8}$
W 4		114 $\frac{1}{4}$	114 $\frac{1}{4}$	111	112 $\frac{1}{8}$
T 5		113 $\frac{1}{4}$	113 $\frac{1}{4}$	110 $\frac{3}{4}$	114 $\frac{3}{4}$
F 6		114 $\frac{1}{4}$	114 $\frac{1}{4}$	113 $\frac{3}{4}$	114 $\frac{3}{4}$
S 7		114 $\frac{1}{4}$	115	113 $\frac{3}{4}$	114 $\frac{3}{4}$
M 9		114 $\frac{1}{4}$	114 $\frac{1}{4}$	113 $\frac{1}{2}$	114
T 10		114 $\frac{1}{4}$	114 $\frac{1}{4}$	113 $\frac{1}{4}$	113 $\frac{1}{4}$
W 11		113	113	111	111 $\frac{1}{4}$
T 12		110 $\frac{5}{8}$	112 $\frac{3}{8}$	108 $\frac{1}{8}$	109
F 13		109	109 $\frac{7}{8}$	106 $\frac{3}{8}$	108
S 14		108 $\frac{1}{4}$	108 $\frac{3}{4}$	103 $\frac{3}{4}$	104 $\frac{1}{2}$
M 16		104 $\frac{1}{2}$	104 $\frac{5}{8}$	100 $\frac{3}{4}$	102 $\frac{3}{4}$
T 17		103	104 $\frac{1}{4}$	101 $\frac{1}{2}$	101 $\frac{3}{4}$
W 18		101 $\frac{3}{8}$	101 $\frac{3}{8}$	97 $\frac{3}{8}$	100 $\frac{7}{8}$
T 19		79 $\frac{3}{4}$	101 $\frac{3}{4}$	99 $\frac{1}{4}$	101 $\frac{5}{8}$
F 20		103	106	101 $\frac{3}{4}$	106
S 21		106 $\frac{1}{4}$	106 $\frac{1}{2}$	104 $\frac{3}{8}$	104 $\frac{3}{8}$
M 23		204	104	101 $\frac{3}{4}$	102 $\frac{1}{8}$
T 24		107 $\frac{7}{8}$	103 $\frac{1}{4}$	101 $\frac{3}{4}$	102 $\frac{5}{8}$
W 25		102 $\frac{3}{4}$	104 $\frac{5}{8}$	102 $\frac{1}{4}$	104 $\frac{5}{8}$
T 26		105	108 $\frac{5}{8}$	105	108 $\frac{3}{8}$
F 27		109	112	108	108 $\frac{3}{8}$
S 28		107 $\frac{3}{4}$	109 $\frac{3}{8}$	106 $\frac{3}{8}$	107
M 30		107	108 $\frac{3}{4}$	105 $\frac{3}{4}$	107 $\frac{1}{2}$
T 31		107 $\frac{1}{8}$	109 $\frac{3}{4}$	106 $\frac{1}{4}$	106 $\frac{1}{2}$

PETROLEUM EXPORTS.

THE appended table from *The Shipping List*, of August 22, shows the amount of petroleum which has been shipped to foreign ports from New York from January 1 to August 22, 1883, and for the same time last year

	REFINED.	TOTALS.	1882.
GREAT BRITAIN.—London	25,162,564	17,155,118	
Liverpool	4,631,462	5,625,356	
Bristol	1,401,474	2,659,485	
Ireland	3,250,428	4,240,706	
Other ports	3,834,201	3,612,182	
GERMANY.—Bremen	29,102,097	29,135,477	
Hamburg	24,348,651	25,424,738	
Konigsburg and Stettin	3,274,482	9,173,036	
Dantzig	302,500	1,437,219	
Other Ports	719,795	1,282,805	
FRANCE.—Marseilles		68,875	
Havre		188,730	
Norway and Sweden	6,520,844	6,606,748	
Russia	1,369,505	1,609,272	
Denmark	6,294,690	5,873,810	
Belgium	25,490,386	13,669,050	
Holland	8,950,149	8,278,160	
Spain	142,770	1,000	
Portugal	1,189,917	956,055	
Gibraltar and Malta	1,092,150	456,580	
Italy	1,172,459	940,184	
AUSTRIA.—Trieste, etc	7,430,816	8,124,508	
Greece	1,280,410	379,300	
Turkey in Europe	2,343,131	3,522,839	
Turkey in Asia	2,329,043	965,620	
India, Siam, etc	9,350,110	16,878,530	
China, Japan, etc	18,000,140	22,323,340	
East Indies	21,932,180	21,725,195	
AFRICA.—Alexandria, etc. E.	1,275,710	1,159,600	
Canary Islands	89,345	79,308	
Other Ports	3,944,009	2,947,784	
Australia	1,281,564	1,894,214	
New Zealand	371,900	477,168	
Sandwich Islands	202,500	55,000	
SOUTH AMERICA.—Brazil	3,475,998	3,086,726	
Argentine Confederation and Uruguay	2,551,370	2,173,683	
Chili and Peru	1,114,400	1,100,510	
U. S. Columbia	169,463	137,831	
Venezuela	411,115	337,776	
Other Ports	114,461	109,490	
Central America	106,875	113,550	
Mexico	842,683	676,666	
British North American Colonies	466,978	246,947	
Cuba	175,336	674,644	
British West Indies and British Guiana	1,151,834	924,894	
Other West Indies	639,244	911,732	
Total	Galls. 229,301,139	229,420,841	

	CRUDE.	
FRANCE.—Havre	4,847,956	4,058,895
Marseilles	1,984,885	1,260,678
Bordeaux	1,451,006	1,228,620
Dunkirk	3,832,184	2,518,749
Other Ports	4,911,695	3,785,644
Antwerp		
Bremen	753,616	746,135
Norway and Sweden	62,374	148,235
Spain	6,148,738	7,730,150
Cuba	1,144,735	1,931,393
Other Ports	1,509,999	
Total	Galls. 26,647,188	23,408,409

	NAPHTHA.	
	TOTAL.	1882.
Great Britain	3,493,360	3,601,703
France	2,000,561	2,038,614
Germany	1,561,081	862,803
Other Europe	1,350,837	1,070,887
Various Ports	64,630	125,840
Total	galls. 8,470,469	7,699,847

	RESIDUUM.	
To all Ports	TOTAL.	1882.
	4,106,716	2,541,924
Total Refined since January 1, actual shipments	GALLONS.	
do do do do Crude equivalent	229,301,139	
do Crude do do actual shipments	305,734,552	
	26,647,188	

Grand Total Crude and Crude equivalent . . . galls. 332,382,040
Same time, 1882 . . . 329,302,864

EXPORTS OF REFINED, CRUDE AND NAPHTHA, FROM ALL PORTS, JAN. 1 TO AUG. 18.

	1883.	1882.
	GALLONS.	GALLONS.
From Boston	3,063,047	4,511,881
Philadelphia	46,531,585	59,380,694
Baltimore	5,232,207	7,563,332
Richmond	173,449	382,239
Total	55,000,288	71,838,146
From New York	260,709,154	257,747,169
Total exports from U. S.	315,709,442	329,585,315

The following table shows the number of vessels, loading and to load with Petroleum at the three principal American shipping ports, Aug. 21.

PORTS.	CRUDE.	REF.	REF. CASES.	NAP. & RES.	TOTAL.
New York	12	87	32	6	137
Philadelphia	10	15	.	.	25
Baltimore	.	12	.	.	12
Total	22	114	32	6	174

STOCKS, SHIPMENTS AND RUNS.

	RUNS OR RECEIPTS.	
PIPE LINE.	JULY 1883.	JUNE 1883.
United	1,716,991.88	1,842,012.03
Tidewater	305,481.24	258,548.99
Octave Oil Co	3,532.32	3,246.01
Charley Run	116.81	
Shaffer Run	683.75	579.50
Franklin (limited)	7,665.32	8,917.54

Daily average	2,034,471.32	2,113,304.07
Decreased receipts	65,628.11	79,443.46
		78,832.75

	DELIVERIES OR SHIPMENTS.	
PIPE LINE.	JULY.	JUNE.
United	1,367,572.93	1,536,750.87
Tidewater	257,348.66	201,666.30
Octave Oil Co	3,848.71	3,520.48
Charley Run		298.24
Shaffer Run	92.38	107.93
Franklin (limited)	5,544.41	5,444.73

Daily average shipments	1,634,407.09	1,747,788.55
Excess of runs over shipments	52,722.80	58,259.60
	12,905.31	12,183.86

	GROSS STOCKS.	
PIPE.	JULY.	JUNE.
United	33,995,765.27	33,656,341.61
Tidewater	2,300,949.05	2,254,530.94
Octave Oil Co	5,489.84	5,687.86
Charley Run	3,986.81	3,324.71
Shaffer Run	28,052.75	30,475.00
Franklin (limited)	37,695.79	35,574.88

Increase	36,371,939.51	35,985,935.00
		386,004.51

	RUNS OR RECEIPTS.	SHIPMENTS GR DELIVERIES.
Daily Average July	65,628	52,722
Daily Average June	79,451	58,259
Daily Average May	69,445	61,411
Daily Average April	69,207	63,612
Daily Average March	64,404	52,737
Daily Average February	65,208	44,352
Daily Average January	65,125	43,813

THE CLEARANCES.

The volume of business at the four leading Petroleum exchanges was unusually large during June and July. The appended figures are from the Clearing House reports, and represent the transactions in banks.

	CLEARANCES.	
	July.	June.
Bradford (two Exchanges)	179,794,000	188,718,000
Oil City	220,248,000	254,120,000
New York	126,152,000	120,984,000
Pittsburgh	114,708,000	125,880,000
Total	639,902,000	689,702,000

The transactions of the different exchanges are now all made through the medium of Clearing Houses, which simplify matters very much, and promote trades without any corresponding increase of labor or loss of time. It has become the custom of the Clearing Houses to count the oil on both sides of the sheets or statements made by the brokers so that the above figures are double the actual number of purchases and sales. Thus, the simple purchase and sale of one thousand barrels of oil is counted two thousand when it passes through the Clearing House.

STATEMENT made by the United Pipe Lines August 10, 1883 showing gross stocks, sediment and supplies, net stocks, outstanding acceptances and credit balances, at the close of each month; also receipts from all sources and total deliveries for each month, beginning with April, 1877.

	Gross Stocks.	Sediment and Surplus.	Net Stocks.	Outstanding Acceptances.	Credit Balances.	Receipts from all Sources.	Total Deliveries.
1877—April	1,895,153.71	77,386.70	1,817,767.01	449,640.14	1,368,126.87	200,570.81	125,797.90
May	1,762,602.64	75,363.87	1,687,237.77	663,663.71	1,003,574.06	493,200.58	619,612.26
June	1,596,367.68	81,255.42	1,488,112.26	661,786.57	826,325.69	538,906.95	737,609.77
July	1,482,433.51	81,741.50	1,400,692.01	667,166.36	733,625.65	615,145.46	699,476.18
August	1,489,052.53	81,144.63	1,407,907.90	643,281.46	764,626.44	673,403.04	666,144.28
September	1,339,032.27	67,163.68	1,271,868.59	552,676.26	719,192.33	625,225.37	769,745.57
October	1,434,728.78	46,771.99	1,387,956.79	673,850.05	714,106.74	687,094.59	570,092.71
November	1,691,399.52	39,418.00	1,651,981.52	657,591.36	994,390.16	913,644.19	649,242.70
December	2,830,413.36	68,729.63	2,761,685.73	754,338.25	2,007,347.48	1,656,150.37	506,332.99
1878—January	3,124,641.15	72,453.43	3,052,187.72	864,711.41	2,187,476.31	872,681.18	715,149.78
February	3,439,526.98	82,452.66	3,357,074.32	1,404,292.13	1,952,782.19	1,030,688.44	720,478.14
March	3,940,000.65	92,963.06	3,847,037.59	1,487,430.50	2,359,598.09	1,196,251.26	701,681.27
April	4,335,274.84	133,935.76	4,201,340.08	1,615,791.19	2,585,548.89	1,137,359.40	778,050.53
May	4,609,681.45	150,117.76	4,459,563.69	2,065,333.31	2,394,230.38	1,104,352.40	843,081.33
June	4,719,699.25	181,800.03	4,537,899.22	1,950,420.81	2,587,478.41	1,092,604.02	1,004,474.55
July	4,885,851.72	229,080.78	4,656,770.94	2,078,466.56	2,578,301.38	1,258,648.45	1,108,074.33
August	4,571,658.59	217,085.19	4,354,573.40	2,064,590.75	2,289,982.64	1,195,268.67	1,496,009.04
September	4,410,061.84	225,088.86	4,184,972.88	2,705,853.95	2,479,119.03	1,182,118.57	1,318,265.33
October	4,072,267.43	234,050.89	3,838,576.54	1,517,484.27	2,321,092.27	1,271,174.73	1,564,984.43
November	4,083,972.42	216,655.30	3,867,317.12	1,784,443.35	2,082,873.77	1,159,623.71	1,129,047.42
December	4,098,200.92	201,470.30	3,896,730.62	1,741,311.07	2,155,419.55	972,338.83	924,035.93
1879—January	4,759,031.41	182,707.80	4,576,323.61	2,153,763.83	2,422,559.78	1,231,237.19	546,271.74
February	5,157,646.15	171,689.80	4,985,956.35	2,346,238.22	2,639,718.13	1,055,377.95	643,828.71
March	5,503,768.71	190,797.91	5,312,970.80	2,484,861.83	2,828,088.87	1,363,512.17	1,029,029.70
April	5,885,675.24	211,957.06	5,673,718.18	2,644,301.36	3,029,416.82	1,379,349.76	1,015,482.04
May	6,180,843.53	315,992.98	5,864,850.55	2,522,846.36	3,342,364.19	1,488,514.31	2,228,043.27
June	6,426,802.45	334,457.29	6,092,345.16	2,959,921.12	3,132,424.04	1,437,250.90	1,204,557.54
July	6,419,699.08	323,295.32	6,096,403.76	2,323,575.29	2,772,828.47	1,472,651.01	1,465,518.05
August	6,380,606.63	300,345.15	6,078,261.48	3,581,224.03	2,497,037.45	1,714,620.11	1,728,940.81
September	6,589,859.83	325,363.85	6,264,995.98	3,783,480.38	2,481,015.60	1,691,863.41	1,455,811.45
October	6,701,209.87	299,393.67	6,401,816.20	3,788,155.65	2,613,660.55	1,646,725.06	1,502,991.20
November	6,951,133.67	303,641.17	6,647,492.50	3,927,300.18	2,675,192.32	1,600,961.29	1,328,621.19
December	7,362,409.76	294,571.37	7,067,838.39	4,235,459.40	2,832,378.99	1,771,781.24	1,331,822.12
1880—January	7,735,257.38	295,517.60	7,439,739.78	4,436,788.55	3,002,951.25	1,832,963.04	1,145,194.98
February	8,187,012.49	322,568.93	7,864,443.56	4,602,286.49	3,262,157.07	1,607,363.89	1,178,111.92
March	8,621,097.49	351,130.35	8,270,967.14	4,811,894.33	3,458,072.81	1,815,133.31	1,396,037.88
April	9,662,354.59	388,558.16	9,273,796.43	5,846,536.60	3,427,259.83	1,739,297.37	723,794.73
May	10,306,078.79	454,193.73	9,851,885.06	6,361,320.05	3,490,565.01	1,552,240.91	975,061.26
June	11,266,771.77	477,431.60	10,789,340.17	7,397,131.89	3,392,208.19	1,781,937.29	848,339.08
July	12,039,010.00	475,446.56	11,563,563.44	8,125,241.25	3,438,332.19	1,890,161.44	1,095,528.25
August	12,749,623.28	462,987.28	12,286,636.00	8,635,394.80	4,651,241.20	1,904,452.70	1,177,448.42
September	13,618,276.03	382,398.71	13,236,327.32	9,287,193.94	3,949,133.38	2,075,105.26	1,115,184.71
October	14,020,877.32	391,331.55	13,629,545.84	9,448,615.77	4,180,930.07	1,999,487.98	1,598,285.06
November	14,656,891.55	341,262.67	14,315,628.88	10,038,824.08	4,231,804.80	1,859,991.50	1,064,146.39
December	15,369,758.67	361,184.83	15,008,573.84	10,913,283.49	4,095,290.35	1,987,283.54	1,207,928.35
1881—January	16,291,307.87	360,688.98	15,930,618.89	11,672,583.61	4,258,035.28	1,876,526.50	931,818.71
February	17,355,485.31	391,616.47	16,963,868.84	12,029,594.35	4,934,274.49	1,823,713.46	781,745.93
March	18,488,476.94	432,304.19	18,056,172.75	13,099,262.44	4,956,910.31	2,222,812.39	1,116,695.11
April	19,560,752.23	517,422.38	19,043,329.85	13,846,285.20	5,197,044.65	2,182,636.96	1,183,779.02
May	20,591,177.33	640,662.03	19,950,455.30	14,608,124.70	5,342,330.00	2,278,582.78	1,356,688.23
June	21,397,698.53	756,412.85	20,641,285.68	14,738,828.77	5,902,456.91	2,318,445.18	1,545,448.13
July	21,982,161.42	774,402.94	21,207,758.48	15,150,267.23	6,057,131.25	2,396,472.50	1,756,044.15
August	22,474,105.51	800,343.43	21,673,762.18	15,240,553.15	6,433,209.03	2,527,888.69	2,013,844.67
September	22,727,740.61	820,434.43	21,907,306.18	15,626,283.11	6,281,023.07	2,233,085.37	1,900,251.83
October	23,212,951.99	801,243.43	22,431,708.56	16,408,030.46	6,023,678.10	2,452,428.66	1,803,052.62
November	23,303,782.34	746,980.08	22,556,744.26	16,407,354.48	6,149,389.78	1,995,895.38	1,742,462.86
December	23,862,966.20	775,000.00	23,087,966.20	16,496,380.40	6,234,291.37	2,255,252.50	1,696,068.64
1882—January	24,243,382.26	762,111.53	23,481,270.73	17,788,245.97	5,693,024.76	1,984,325.23	1,567,945.23
February	24,704,933.81	765,000.00	23,939,933.81	18,541,340.52	5,831,402.36	2,062,742.98	1,601,191.43
March	25,663,298.81	887,210.88	24,776,087.93	19,039,760.73	5,736,327.20	2,305,538.30	1,453,354.46
April	26,519,252.22	993,150.92	25,526,101.30	19,963,183.00	5,562,918.30	2,145,965.63	1,381,093.10
May	27,518,619.53	1161,789.36	26,356,830.17	20,622,520.38	5,734,309.79	2,339,170.39	1,496,566.23
June	28,311,328.53	1344,852.60	26,966,475.93	21,282,495.62	5,683,980.31	2,419,934.81	1,796,712.55
July	28,955,781.79	1330,493.28	27,625,288.51	22,037,273.31	5,588,015.20	2,599,606.49	1,982,695.57
August	30,198,208.64	1370,660.62	28,827,548.02	22,094,815.90	6,732,732.10	3,176,053.39	1,870,745.07
September	31,068,182.32	1473,646.07	29,594,536.25	23,824,360.13	5,770,176.12	2,569,036.25	1,799,316.21
October	31,390,694.71	981,249.05	30,409,445.66	24,031,440.00	5,647,240.00	2,369,517.35	1,834,217.13
November	31,900,475.68	894,397.98	31,006,077.70	25,722,724.08	5,283,353.02	1,970,991.00	1,157,100.30
December	32,859,088.91	1,068,847.17	31,790,241.74	25,420,570.77	6,369,670.97	2,013,995.86	964,908.48
1883—January	33,472,761.77	1,054,109.94	32,418,651.83	26,423,935.50	5,994,716.33	1,811,822.59	1,142,218.00
February	34,190,453.76	1,204,023.09	32,986,430.67	26,618,762.40	6,367,668.27	1,630,015.80	1,043,912.66
March	34,655,372.59	1,543,361.15	33,112,011.44	25,853,292.32	7,258,719.12	1,783,537.51	1,378,966.55
April	35,089,989.04	1,966,262.60	33,123,726.44	25,393,241.53	7,730,484.91	1,856,792.91	1,554,047.32
May	35,577,182.89	2,210,712.30	33,366,470.59	27,084,933.67	6,281,536.92	1,895,282.60	1,637,203.44
June	36,049,470.50	2,393,128.89	33,656,341.61	28,591,100.76	5,065,240.85	1,842,012.03	1,536,750.87
July	36,424,622.82	2,428,857.55	33,995,765.27	27,873,375.77	6,122,380.50	1,716,001.88	1,367,572.02

The above figures are in barrels of 42 gallons each.

THE PETROLEUM AGE.

DEVOTED TO THE

Interests of the Petroleum Trade.

PUBLISHED MONTHLY AT

BRADFORD, PA.

BY McMULLEN & SNELL.

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ALTHOUGH THE PETROLEUM AGE has been before the public for nearly eighteen months, this is really an initial number so far as its present proprietors are concerned. The limited time at the disposal of its editors, consequent upon the magazine changing hands towards the latter end of the month, has caused a very hasty preparation of material, but it is hoped that the important principle of accuracy has not been overlooked.

The reader will find within its pages more fact than fancy, and more dry figures than pleasant imaginings. The aim of the publishers is to make it an accurate epitome of the Petroleum industry, and a reliable authority and reference on all the available statistics of the oil business.

Owing to the disadvantages previously mentioned, the present issue may fall somewhat wide of the mark, but there will be an earnest effort for improvement, which will speak for itself, in each succeeding number.

EVERY once in a while some correspondent of an outside paper has a desponding tale to tell of abandoned wells in the Bradford field. The story is usually put in this form: "There are five thousand abandoned wells about Bradford that are not producing at present, but as soon as oil gets above \$1.20 per barrel the owners will start them up again and increase the average daily output from three to five thousand barrels."

Now, a well that has been once abandoned is completely dead so far as producing Petroleum is concerned. The tubing is taken up, the casing pulled, and the material that can be utilized moved to some other locality; and secondly, the whole number of wells abandoned in this manner during the last five years will not reach five thousand by a considerable number.

There are at all times within the field a certain proportion of wells that, owing to lack of water, a collapsed derrick, scarcity of fuel, or some other cause, are temporarily shut down and

non-producing. When a well ceases to produce enough oil to pay for the cost of pumping, it is pulled up and abandoned. Generally speaking, the wells are kept producing as long as possible, and the increase that may possibly come from starting dying wells afresh upon the face of a decided advance in the market can never become a factor in depressing the price of crude.

Old wells are constantly being torpedoed and re-torpedoed in all parts of the Bradford region, and the results as shown by the reports elsewhere go to prove conclusively that the waning powers of the great third sand oil basin are beyond the possibility of resuscitation.

THE CALIFORNIA FIELD.

In a conversation with a reliable gentleman just from the California oil field, we learned some facts of importance to the oil producer. The total daily production of the golden state does not exceed 400 barrels. The average yield of refined is about 30 per cent, and the balance of residuum, not including the small amount of benzine, etc., made, is used for fuel in boilers.

We gathered from our informant that, although oil leaps out in many places along the coast, the producing boundaries of the field cannot be regarded in any sense as formidable, and the general trade cannot be affected, as the Pacific Slope will use all of its own product and need more.

The Pacific Coast Oil Company, composed of the largest capitalists of San Francisco, with a few other parties, may be said to control all the available oil territory, so that the ubiquitous Pennsylvania wild catter seems to be effectually shut out unless his bank account is large.

The above named company has been operating seven years and have but fifteen wells finished or producing. Several of these were one year each in drilling, and one cost \$25,000.

The Pico district is the present scene of operation of a company from Pennsylvania. Newhall, Los Angeles county, is their point of supply. Lumber, including rig timbers, cost there \$35 per 1000, and \$20 additional for hauling. Seventeen thousand feet of lumber is used in building a rig. In one instance the making of one-half mile of road cost \$1,000. Want of space forbids further details, but enough has been stated to show that the California field will, soon, if ever, need any of the surplus iron tankage of the east.

THE citizens of Bradford and crowd of visitors drawn to the city by the firemen's parade, were treated to the wonderful exhibition of a 3,000 barrel flowing oil well fire on Thursday night, August 23.

Victor Gretter, who extinguished the famous 647 well fire, gave the exhibition under his new process, and that it was a surprisingly realistic reproduction of that noted conflagration all will agree who witnessed both displays.

It is Mr. Gretter's intention to give exhibitions throughout the United States, and take, as it were, a burning oil well right to the homes of the people. He has expended much time and labor in bringing his project to perfection, and has applied for a patent on his invention, which we are permitted to describe as follows:

To a piece of oil well casing representing the well two pipes connect and are carried to separate reservoirs, one holding oil and the other gas or its equivalent. Powerful pumps on each pipe draw the gas and oil from their respective receptacles and force the fluids into the casing, where they commingle and ascend in flame.

The pulsations, furious spurts, and many weird phases of a burning flowing well are vividly produced.

The oil region people can now no longer hold exclusive claim to burning wells, for one of her enterprising sons will furnish outsiders conflagrations to order, and our product will in another and grander way continue to light the world.

Every day or two there is an announcement of the discovery of a new and important oil field in California, Colorado, Missouri, or somewhere else. Then follows an ominous silence and the new territory is forgotten. The announcement is just enough to bear the market a point or two, and there are always lambs enough to give the shearers quite a picking of fleece.—*Elmira Advertiser*.

For the 24 hours ending on the morning of August 25th, the 56 wells in the Balltown field were producing 3,328 barrels. The gauge of the twelve wells finished during the month ending Sunday morning, August 26, showed a new production for that twenty-four hours of 2,099 barrels. The New York trade put a bearish construction on this statement. If the 24 wells finished prior to July 27, were doing less than 2,000 barrels, what will become of the dozen in the course of two weeks or a month?

THE TRIAL GAUGE.

The parties who own or control the crude stocks of the region, wield the balance of power when it comes to regulating the price of petroleum through the channel of speculation. The condition of these stocks and the correctness of the official reports concerning them, are the basis of our credit with outside capitalists. That all may be satisfied of the fidelity of all published reports concerning the stocks in the custody of the United Pipe Lines, an opportunity has been given for making a thorough inspection. The following letter from President Vandergrift explains itself:

OIL CITY, Pa., Aug. 17, 1883.

C. S. Wheeler, Esq., President Conference of Oil Exchanges, Bradford, Pa.

DEAR SIR:—In accordance with the usual custom of the United Pipe Lines, the annual inspection of the stock of oil in our custody, will be made on September 1, 1883, and that the trade may be able to confirm our reports, we suggest that your body appoint a committee to witness this inspection, and also to examine our books and accounts of oil liabilities.

By order of Executive Committee,

J. J. VANDERGRIFF, Pres.

This invitation was accepted by the different exchanges, and at a meeting held in Oil City August 22, a committee was organized by electing Mr. C. S. Whitney, of Bradford, chairman, and Mr. T. B. Simpson secretary. At this meeting the following representatives were chosen to take charge of and direct the work. For the Bradford and Allegany fields or country above Warren, Messrs. C. S. Whitney, David Kirk, Bateman Goe, O. P. Taylor, and Morris, were appointed; and for the lower field, Messrs. Frank Tack, Nic. Mehlen, J. B. Smithman, T. B. Simpson, and S. B. Franchot.

The exchanges have all responded to the call of the committee for their proportional amount of funds except that of Titusville. It is estimated that the cost of the gauge will be about \$3,000:

The following circular, setting forth the method of making the gauge was read.

CIRCULAR.

OIL CITY, August 18th, 1883.

The following instructions will be observed in making the annual oil inspection beginning September 1, 1883:

1st. Note the amount of fluid as found, giving date of inspection of each tank.

2d. Take sample at each hatch and give the average. To enable you to correctly determine the value or "per cent. of good oil from B. S.," treat a few samples at a temperature of 125 degrees, allow them to cool and then make measurements. This will assist the judgments in fixing values without treating every sample. On the first page of the books herewith, you will find the form to be used, giving to each tank a page. The headings are (1st) Reg. No. of tanks. (2d) Total fluid. (3d) Sediment. (4th) Free water. (5th) B. S. (6th) Quality—good, bad, worthless. (7th) Per cent. of good oil from B. S. (8th) Condition of tank—hatches, roof, stairs, lightning rod, general condition. (Note anything about tank not found in first rate order.) (9th) Date of inspection. (10th) Signature of inspector. These are not to be copied, but the original book used forwarded through your superintendent to L. C. Longaker, at Bradford, Pa., as soon as filled. Note also the working or station tanks as "W," and state if oil is being received

when inspection is made. Do not attempt to do this in a hurried manner, but rather strive for accuracy, not leaving a tank till satisfied of the correctness of results obtained. When not clear upon any point ask for instructions.

Yours Truly,

J. B. MAITLAND,
Superintendent Tankage.

The instructions issued by Mr. C. S. Whitney are similar to those of Major Maitland, with the following additional:

4th. Satisfy yourself of the correctness of the gauge poles used in taking measurements.

5th. Make out blanks and have the signatures of the pipe line inspector and yourself attached and return the same as promptly as possible to C. S. Whitney, Bradford, Pa.

Mr. S. G. Morrow, a gentleman who has had years of experience in gauging tanks and inspecting oil, will have charge of the 104 gaugers and 14 inspectors of the northern district. Mr. J. H. Simonds, an experienced pipe line man, and expert accountant, will examine the books of the company in Bradford. Mr. W. S. McGhee, secretary and treasurer of the Porcupine Oil Co., will have supervision of the Warren, or middle division. He has had experience as an oil inspector in Pittsburgh, Pa. Mr. J. B. Smithman will be the active worker, in having the gauge and inspection conducted in a proper manner throughout the Lower Country.

The work of taking gross measurements will begin at seven a. m., September 1. The inspection will be completed as early in September as is consistent with thorough work.

WHEREABOUTS OF THE SCOUTS.

The oil scouts who were encamped on the Tionesta last winter, are widely scattered. William Boyle, Joe P. Cappeau, B. S. Tupper, Geo. Torrey, and Sam Watson, still watch the vibration of the drill on Cooper Hill, and at Balltown. S. B. Hughes is at Warren; P. C. Boyle and L. A. Beaumont are studying developments westward; O. A. Evans, William Edwards, and J. H. Rathbun are leading quiet lives, undisturbed by the restless wild-catter; D. A. Herring is oscillating between Bolivar and Balltown, and J. C. Tennant is on the wing where prospective work is under way.

At a meeting of the Anchor Oil Company, held at the company's office in Warren, August 14th, the following officers were elected: L. H. Smith, President; T. J. Vandergrift, Vice-President; W. H. Johnson, Secretary and Treasurer; J. A. Cadwallader, Manager. The following gentlemen were elected directors: L. H. Smith, J. J. Vandergrift, T. J. Vandergrift, J. D. Archbold, J. A. Cadwallader, E. T. Johnson, W. H. Johnson, S. Comfort, H. Y. Pickering.

NATURAL GAS.

The business of furnishing natural gas for light and heat is assuming a magnitude which is surprising the most venturesome of oil region projectors and pioneers. It has long been one of the luxuries of life in the oil region, and the day is not far distant when it will scatter a genial warmth, and shed a friendly light over happy homes in every section where it can found. Through the enterprise of oil region business men it is now feeding the fires of the great furnaces of the Iron City.

The last bold project in this favorite business with oil men is to light up Kansas City, Mo. On the 20th of August the Council of the city passed an ordinance which was approved on the 21st, giving D. W. Longwell, K. H. McBride, J. H. Snow and O. P. Taylor a franchise or the exclusive right of furnishing natural gas to the city for the purpose of light and heat for five years.

Early in summer the gentlemen learned that natural gas in large quantities had been found at various points about the place, and Mr. J. H. Snow and their attorney, H. McSweeney, Esq., went on an investigating tour of two weeks. They found that a large gas well had been struck in 1874 at Wyandott, Kansas, three miles northwest of Kansas City. It continued to produce gas until 1880, when the salt water and fresh water, which had never been cased off, drowned it out. Dr. Ridge encountered natural gas while sinking an artesian well, at a depth of 600 feet, within the limits of the city.

Natural gas has also been found at Rosedale, three miles south of Kansas City. The gentlemen believe that natural gas is exerting a pressure in the rock which underlies this mighty city of the west.

The capital stock of \$100,000 has all been taken, and the originators will organize a company about the first of September. They will transact business in the distant State as a Pennsylvania corporation. In the hands of such experienced men as Messrs. Longwell, McBride, Snow and Taylor the failure to find an ample supply will alone interfere with successfully carrying out the scheme.

The Warren Light and Heat Co., and the Chautauqua Heat and Light Co., are made up largely of Warren oil men and officered as follows:

President—F. P. Hays.

Vice-President—T. J. Vandergrift.

Treasurer—W. S. McGhee.

Directors—T. Struthers, M. Murphy, George R. Wetmore, Jno. P. Park and C. H. Noyes.

Their charter allows them to heat or furnish gas for fuel in Warren, and the Chautauqua Co. has the right to heat and light Jamestown, N. Y.

The C. A. & D. Cornen's new gas wells southwest of Clarendon and northeast of the Cherry Grove development, with their gas line, have been purchased by the companies. These wells are among the largest which have been struck and will afford an abundant supply for the two towns. They have three wells sending forth the inflammable vapor and two more drilled to the top of the sand and shut down. (These wells are famous as having furnished the key which led to the discovery of the Cherry Grove pool.) A large number of men are now at work stringing the eight-inch pipe over the distance of 26 miles from the wells to Jamestown. In a circular lately issued the company state that they expect to supply gas for fuel to Glade, North Warren and Warren as early as September 15th, and in no event later than October 1st. The Lakeside town will be reached later in the season.

Three gas blowers in the vicinity of Wilcox contribute to the gas supply of the United Lines. The gas is conducted through an eight-inch pipe twenty miles long to their gas pipe system in the Bradford field. They have three wells in the vicinity of Wilcox drilled to the top of the gas sand and shut down.

H. E. Pickett, who drilled the first heavy gas well south of Rixford, discovered by careful levels that the sand in the gas section was raised above the plane of the rock where oil was found. The Pickett well was able to supply gas for one hundred drilling wells, allow quantities to go to waste, and still show a pressure on pipes of 140 pounds to the square inch.

Mr. Asa P. Wilson, of Pittsburgh, who has devoted considerable attention to the subject of natural gas, is authority for the following: The large gas deposits will be found within a limited territory, but the supply is comparatively inexhaustible. This territory may be bounded by taking western Warren county, Pennsylvania, as a pivotal point. A line drawn from there in a northeast direction to Lake Ontario, and southwest from the same starting point to Rochester, Penn., near Pittsburgh, through Wheeling, W. Va., Marietta, Ohio, Parkersburg, W. Va. (the center of the great Appalachian coal basin), to Roane county, W. Va., will constitute the northwest side of the basin, and a similar line drawn

about eighty miles east will constitute the eastern boundary of all the territory in which large gas deposits may be expected in New York, Pennsylvania and Ohio. A continuation of the belt, but narrowed, through Kentucky, Tennessee and into Arkansas, should also furnish liberal gas deposits. Sections of Wisconsin, Indiana and Illinois are also likely to furnish gas deposits. The points where the largest flows of gas are likely to be found within this territory, are Butler, Armstrong, Westmoreland, Greene and Washington counties, Pa.; Ohio, Brooke, Marshall, Wetzel and Monongalia counties, W. Va., and Belmont county, Ohio. The immense quantities of gas to be found in these counties will make them eventually the center of manufacturing industries in this country, especially in iron and glass. Natural gas can be taken anywhere, and costs only the pipe-laying. It will flow of itself. From the McGuigan gas well in Washington county, Pa., a four-inch pipe laid to Washington, D. C., would deliver 500,000 cubic feet per hour, with the pressure from the well alone, which is five hundred pounds to the square inch. Then there is no friction in the gas. It is tight and dry, composed principally of hydrogen, contains no silicon or sulphur and burns with a white, brilliant light. Cities could be profitably lighted with it at a much lower rate than can be done by manufactured gas.

Good plate glass was never made in this country until Mr. J. B. Ford, the father of the plate glass industry in this country, conceived the idea of using natural gas. He was led to its use on the score of economical reasons, at first, in order to compete with cheap European labor, but now he has found that it is not only the cheapest but best possible fuel for the purpose. The immense works of the New York City Plate Glass Company at Creighton (18 miles from Pittsburgh) not only turn out cheaper glass than can be imported, but it is rapidly becoming superior to imported glass. The gas makes the glass softer, purer, more easily ground and more susceptible of a high polish.

The use of the natural gas for fuel instead of coal is greatly preferred by some of our manufacturers along the Allegheny river. Within the last three months it has been used at the O'Hara Glass House; at the Tank and Boiler Works of McNeil & Bros.; at the Iron Works of Wilson & Walker, and now it is being used at a few of the furnaces at the rolling mill of Shoenberger & Co. The pipes are extended to the Sable Iron

Works of Zug & Co., Wayne Iron Works of Brown & Co., where it is also to be used before long.—*Pittsburgh Chronicle*.

James G. Blaine is said to be largely interested in a company that has the project in view of supplying New York city with natural gas from Western Pennsylvania. Several Canadian capitalists are reported interested in the venture.

The discovery of Petroleum gas in Vermillion Valley, thirteen miles south of Chicago, is reported.

The Gasport people have given up all hopes of finding oil at their venture six miles east of Lockport, N. Y., and will utilize the well to supply the village with illuminating gas. The gas vein was found at a depth of 1,050 feet.

SHIPMENTS.

The daily average shipments from the region, according to Stowell, for the first seven months of 1883 were 54,418 barrels. For the same time in 1882 the daily average was 62,477 barrels. For the first 212 days of this year the average per day is 8,059 barrels less than it was last year. To ship as much oil in 1883 as was shipped in 1882 will require a daily average of 67,592 to be sent out of the region for the remainder of the year. The parties who control shipments have it in their power to give a bullish or bearish tinge to the situation by the manipulation of deliveries. When the lightning season has passed refiners may be more anxious to store oil at the seaboard, where there is considerable empty iron tankage.

John C. Welsh figured the daily average shipments from the region for 1882 61,024, and for 1881 57,143 barrels. He estimated the daily average consumption of crude for 1882 61,000 barrels, 1881 56,000, 1880 46,000, and 1879 43,200 barrels.

According to *The American Newspaper Catalogue* of Edwin Alden & Bro., Cincinnati, O., just published, containing over 800 pages, the total number of newspapers and magazines published in the United States and Canadas is 13,186; (showing an increase over last year of 1,028.) Total in the United States, 12,179; Canadas, 1,007. Published as follows: Dailies, 1,227; Tri-Weeklies, 71; Semi-Weeklies, 151; Weeklies, 9,955; Bi-Weeklies, 23; Semi-Monthlies, 237; Monthlies, 1,324; Bi-Monthlies, 12.

Total exports from the United States of refined, crude and naphtha, from January 1 to August 18, 1883 were 330,378 barrels less than they were for the same time last year.

THE MACKSBURG FIELD.

The crude antiquarian will find much of interest in the early history of the Macksburg field. It co-exists with the dawn of the Pennsylvania development. As long ago as the autumn of 1859 the denizens of the village of Macksburg were drilling for oil in the narrow valley through which winds the sluggish and circuitous Duck Creek. At that time lubricating oil was struck at a depth of 56 feet. During the intervening years there has been more or less operating for oil in this portion of the Buckeye State, and petroleum of various colors, gravities and from different depths has been produced. The field takes its name from the village of Macksburg, located in the northern part of Washington county, O. This quiet hamlet is fifteen miles on an air line due north, and twenty-five miles by rail from the fair town of Marietta, on the banks of the Ohio. Macksburg has passed through three oil excitements, and is now undergoing the fourth. Prior to 1879 the drill paused in its downward course when a shallow depth had been reached. During that year Alexander Minshall, of Parkersburg, West Virginia, drilled a deep well at Dexter Station, two miles northwest of Macksburg, and demonstrated the existence of an oil sand below the continuous salt-water rock which underlies the whole section. From this well, which was a gasser, George Rice, Marcus Hulings, Decker and others have worked eastward until oil has been found in this sand, which is reached at a depth of 1,500 feet on the Duck Creek flats.

The sand before it is discolored with salt water is white, fine and hard. It resembles that found in the Clarendon and Tiona districts of Warren county, Pa. From its texture the practical oil man would expect lasting wells, but it must become softer, less gritty and more porous before it can afford large wells. This white sand is capped by a black shell non-productive of crude.

The oil has a dark amber color of the same hue as the medium colored oil of the Cherry Grove field. The crude found in the more shallow sands is black, like that mined in the Nile section, Allegany county, N. Y. The gravity of the oils of the Macksburg district used for refining purposes is said to range from 38½ to 43°.

Major T. B. Hoover, a former real estate dealer in Bradford, and Mr. Keeler, a Forest county wild-catter, have done much to direct public attention to the prospective field. Many of the

oil scouts have visited the section, and a number of leading producers and prominent speculators keep men there most of the time. Senator Bradley, C. H. Foster and Painter Bros. have leased 900 acres southwest of present developments. Major Hoover, Laing & Co. have several thousand acres leased east and southeast of Macksburg, along the line running to the Cow Run development, fourteen miles distant. The Union Oil Co. have had a representative in the field securing leases and buying options on lands.

Mr. Morton, reported to be with Phillips Bros., is placing an embargo on as much land for oil purposes as he can conveniently handle.

A reliable party, who has lately returned from the field, furnished the following gauge of a number of the wells for August 25th.

Owner.	Barrels.
Rice	1
Decker, 1	6
Decker, 2	13
Frew	1
Keeler, Laing & Co.	7
Hulings, No. 1	4

The following report was made by a well-known oil scout, August 22d:

In point of production the nine deep wells of Macksburg acquit themselves this (Thursday) morning, as follows:

	Barrels.
Decker & Son, No. 1	6
Decker & Son, No. 2	23
Decker & Son	4
George Rice, No. 7	4 $\frac{1}{2}$
George Rice, No. 14	5 $\frac{1}{2}$
Keeler & Co., No. 1	10
E. B. Frew, No. 1	8
Hulings, No. 1	4
Crawford, No. 1	1
Total	66

Opinions differ widely on the probabilities of the section, but most operators who visit there secure a piece of property, which is cheap to hold.

A correspondent writes from Marietta, August 21st, as follows: The Hulings well has been drilled through from nine to ten feet of sand. It is of good quality, but rather deficient in gas. This well is little more than a half mile southwest of the Frew. Decker & Son's well is doing 13 barrels, and they have a rig up for No. 3. Laing, Keeler & Co. will case No. 2 to-day. Stevens & Co. and Roice & Brundred are casing off the 1,000 feet salt-water to-day. Bradley & Co. have a rig up on the Hall property, and are waiting for machinery. Mills & Mullen located a rig yesterday. "Tim" Spellacy is starting a rig in the southwest. The Keeler crew are making splendid time, and will finish their No. 2 well in 30 days.

In the next issue of THE AGE a complete report of new operations in the field will be a conspicuous feature.

VISITING LEGISLATORS.

Senator Emery has for a long time been doing his utmost to have his fellow-members of the Senate view measures pertaining to the welfare of the oil regions from the proper angle. In the days gone by they have not had a local interest in our cosmopolitan life, nor have they appreciated the magnitude of the oil business. At the close of the last session more than a dozen of the law-makers were entertained in royal style and piloted over the region by Senator Emery and his Bradford aids. They had every opportunity of becoming familiar with the oil business and seeing the many phases of our complex civilization. In the future it will not be the fault of our representative if these Senators do not take a wider view and a livelier interest in all legislation that relates to the Petroleum industry. The gentlemen who partook of Senator Emery's hospitality were: Senators—Wm. T. Davie, of Bradford county; L. R. Keeler, of Schuylkill; John M. Greer, of Butler; Sam'l C. Wagner, of Cumberland; Jas. W. Lee, of Venango; Jere. S. Hess, of Northampton; Joseph P. Kennedy, of Philadelphia; Chas. F. King, of Schuylkill; Wm. M. Nelson, of Wayne; Geo. W. McCracken, of Lawrence; John J. Macfarlane, of Philadelphia; Wm. W. Hart, of Lycoming; Jacob H. Longenecker, of Bedford, and Geo. Pearson, of Mercer, Clerk of Senate. The remaining guests were George D. Herbert, of the *Philadelphia Press*; J. V. Cracraft, of the *Pittsburgh Post*; Charles Ashburner, of the State Geological Survey, and A. J. Hughes, of the *Allegheny Reporter*.

The *Bradford Era* publishes the following summary of its monthly report of new operations for August, 1883:

GRAND SUMMARY.						
August 31, 1883.				July 31, 1883.		
New Rigs.	Old Rigs.	Wells Dr'lg.	Total.	Rigs.	Wells.	Total.
Bradford	50	15	84	149	64	145
Allegheny	112	20	131	263	95	206
W. & F.	30	6	71	107	44	85
Lower field	16	9	26	51	27	60
Miscellaneous	3	—	4	7	—	—
Total	211	50	316	577	230	496
Increase			81			

GRAND SUMMARY.						
August 31, 1883.				July 31, 1883.		
Wells.	Pro-duction.	Dry.	Total.	Wells.	Pro-duction.	Dry.
Bradford	97	1042	2	70	883	4
Allegheny	120	1251	5	115	1482	6
W. & F.	60	1800	10	55	1218	6
Lower field	31	164	8	24	215	4
Miscellaneous	4	—	4	—	—	—
Total	312	4257	29	264	3798	20
Increase	48	459				

The statement of the United Pipe Line's gross earnings in the State of New York for the year ending June 30, as received by the State Comptroller, was \$708,052.

WELLS COMPLETED.

TOTAL NUMBER OF WELLS COMPLETED EACH MONTH IN THE YEARS NAMED.

A. D.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1870	131	131	114	135	164	182	161	156	135	144	112	79	1,644
1871	98	68	70	81	95	150	139	116	125	186	161	181	1,470
1872	48	118	98	122	130	98	131	117	96	101	41	101	1,201
1873	100	105	105	110	106	180	112	116	116	111	108	95	1,364
1874	108	111	108	110	112	113	124	102	108	117	112	116	1,341
1875	184	186	194	180	169	194	208	206	208	215	213	228	2,385
1876	235	236	248	207	200	258	243	274	223	270	278	271	2,943
1877	275	249	296	264	336	598	314	254	332	460	398	391	4,167
1878	279	238	202	411	468	278	210	180	176	232	241	160	3,075
1879	144	136	221	263	395	336	335	280	269	229	225	268	3,101
1880	311	238	358	494	435	315	339	359	359	360	334	309	4,211
1881	232	218	201	310	412	371	348	335	314	302	347	405	3,795
1882	357	359	389	449	457	328	188	248	169	116	150	122	3,332
1883	125	131	141	212	229	220	252						

Total for 13 years ended December 31st, 1882 34,02

PIPE LINE RUNS.

The average daily pipe line runs for the entire region were 70,443 barrels in June, and 65,628 in July. The Bradford and Allegany runs were 52,113 barrels in June, and 48,870 barrels in July. The difference between the Bradford and Allegany runs and those of the entire region make up what is termed the outside runs. Taken for a number of consecutive months these show the production of all sections of the oil regions outside of Bradford and Allegany. The daily average outside runs for June were 18,330 barrels, and 16,758 in July.

The loss by the fire at the Empire Oil Works, Long Island City, will not exceed \$100,000. The property destroyed consisted of two buildings, 1,200 empty barrels, 2,500 barrels of oil, each containing 42 gallons, 150,000 empty cases, and about 15,000 ten gallon cases of refined, and three tanks containing between 30,000 and 40,000 gallons of refined oil. The pier, which cost \$50,000, was also completely destroyed. It was thoroughly saturated with petroleum, and continued to burn by degrees as the tide lowered.

The Bureau of Statistics reports the exportation of 559,954,590 gallons of crude Petroleum and its products from the United States for the year ending June 30, 1883. The amount for the year ending June 30, 1882, was 505,931,621 gallons. The value of the exports for 1883 was \$51,232,706, and for 1882 \$44,913,079.

The production of the entire region for July and August, is estimated between 63,500 and 65,000 barrels. Bradford and Allegany are figured close, the element of doubt hangs over the outside field.

J. R. Brambly has sold his lease of fourteen acres on the Waters farm, upon which the Brambly well is located, to G. N. Moore, of Olean, for \$8,000 cash. There are three producing wells on the lease, which is subject to one-eighth royalty. Mr. Brambly will be remembered as the operator who drilled the well which gave rise to the Sugar Run development. He has bought a fine farm near Union Springs, on the shore of Cayuga Lake.

Mr. P. T. Kennedy, who has been largely interested in the producing interests of McKean, gave a free excursion to Chautauqua lake, for the working men of Bradford, August 29. It was a very generous act, and sets an example that can be imitated with safety by employers everywhere.

The August average daily shipments from the region by the United and Tidewater lines were 66,667 barrels. The August average daily charters were 49,610 barrels.

The Eclipse refinery, of Olean, is now running full blast. Operations had been shut down for about two months. Business was started up on Monday morning, August 20.

The use of oil stoves has greatly diminished the consumption of coal among the poorer classes in New York. Before they became common the corner groceries got at the rate of \$15 per ton for coal.

The Enterprise Transit Co., through their agent, Mr. John Brown, have sold 50 acres, upon which there are four producing wells, to Mr. H. L. Blackmarr for \$25,000. The property is a portion of their extensive tract west of State Line on the O. B. & W. R. R.

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THE

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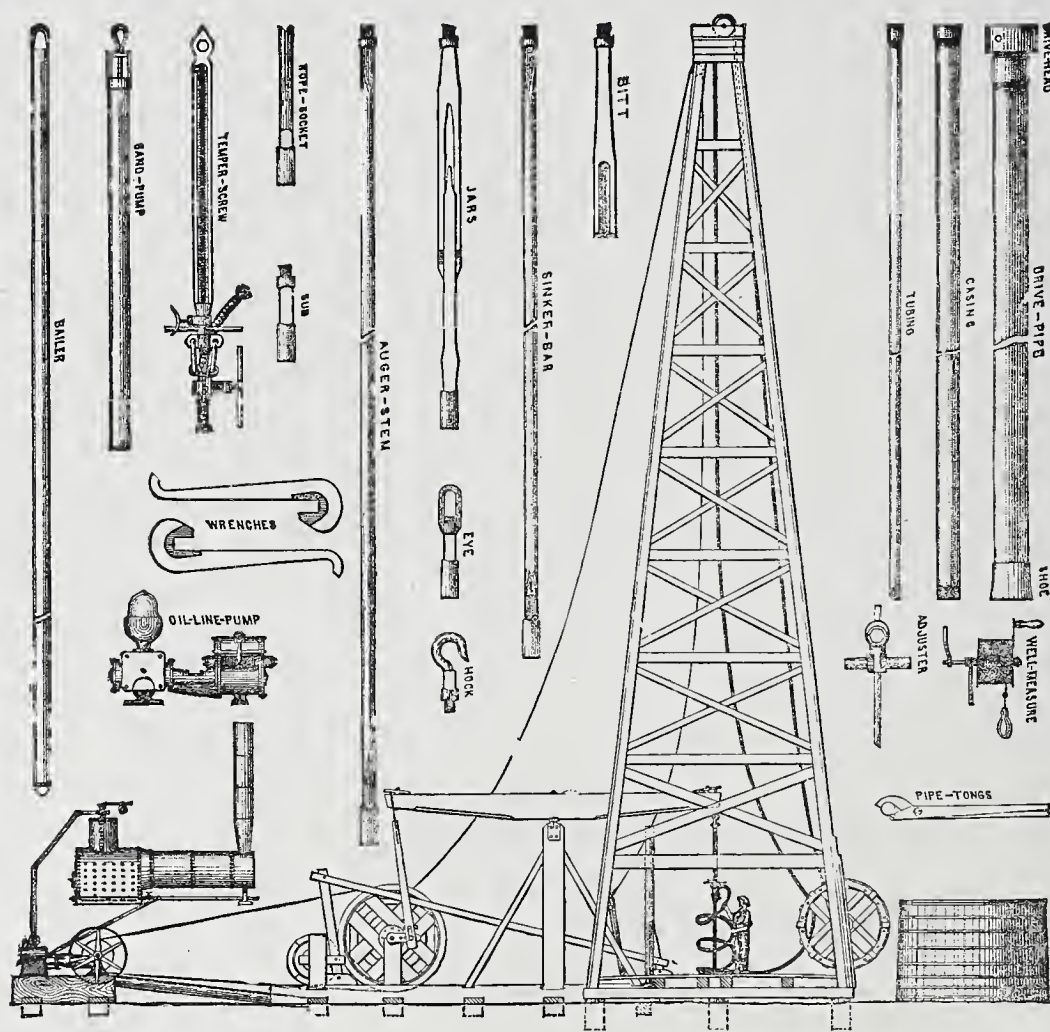
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THE PETROLEUM AGE.

VOL. II.

BRADFORD, PA., SEPTEMBER, 1883.

No. 8

THE RELATIONS OF BANKERS AND PRODUCERS.

BY C. F. ALLEN.

CHAPTER II.

The advent of certificates in New York, Philadelphia, and Pittsburgh, and their recognition in these cities caused one of the most determined and willful of all chronicled attempts at *felo de se*. The hitherto timid producer, striped with many stripes, and sore with such recollections as came of Pithole, Red Hot, Bully Hill, and a hundred kindred slaughter-grounds, now found an endless tide beneath his drill, and a dawning certainty of participation in the financial aid extended to all producers of other staples. From two locations tested in the valley of the Tuna, each arriving oil man drew his lines to probable fields ahead, and climbed the mountains of McKean for locations. The bright fabrics of hemlock derricks stood on a thousand hills, and in due time came the floods of oil, not from one well at a time, but from half a dozen drilled on a single lease. It was common then to sell options against the production expected from a drilling lease.

In 1877 and 1878 the stocks increased only about 2,000,000 barrels; in 1879, 3,000,000; in 1880, 8,000,000; in 1881, 7,600,000; in 1882, 9,000,000. It must not be supposed that the small increase of 1877-78 meant idleness on the part of the operator; the number of wells finished is quite up to the work of any other year. The accidental or experimental discovery of the effects of tremendous doses of glycerine was the signal for an army of moonlighters to stir up every well in the country. The old wells, pumping daily ten or fifteen barrels as quietly, evenly and meekly as a Jersey cow, under the influences of these miniature earthquakes, poured out thirty to fifty barrels in the same time, and set both bankers and producers wild with anxiety. The former feared a repetition of the panic of 1873, and 40 cent oil; the producer had the anguish of seeing his overflowing tanks, in danger of fire and leakage, while he was

forced to add to their number. The following is from the monthly report of the *Bradford Era*, March 1st, 1880, and shows the nature and activity of the investors of these times.

FRISKY FEBRUARY.

A Mad Rush of the Drill All Round the Region.

IN ONE SHORT MONTH.

WELL! WELL! 281 WELLS FINISHED, YIELDING 7,641 BARRELS ON THE LAST DAY OF THE MONTH—HALF DOZEN DUSTERS—AN INCREASE OF 36 WELLS.

FEELING THE FUTURE.

583 RIGS BUILT AND BUILDING—496 WELLS DRILLING—INCREASE OF 131 RIGS AND 39 DRILLING WELLS.

THE BRADFORD BOOM.

360 WELLS COMPLETED, PRODUCING 7,414 BARRELS ON THE LAST DAY OF JANUARY—TWO DRY HOLES—AN INCREASE OF 40 WELLS FINISHED.

MARCH'S MENACE.

540 RIGS UP AND BEING CONSTRUCTED—451 WELLS DRILLING—MAKING A TOTAL OF 991.

991—THREATENING A THOUSAND—991

INCREASE OVER JANUARY OF 104 RIGS AND 56 WELLS GOING DOWN—A TOTAL OF 160.

The same paper said editorially:

"Men with capital are now and have always been reluctant to invest in the absence of extraordinary inducements. Until the producer places himself in a more independent position by curtailing operations, defining producing territory and reducing stocks, the prospects of capital taking hold to force prices upward cannot truly be regarded as of an encouraging nature or among the possibilities."

The defining of territory was not what the producer was negligent of; that came of necessity; and if you see him latterly in the inner or outer meshes of the oil exchange, you have only to suggest new territory to make him forget the ground and lofty tumbling of the indicator.

As a necessity, the money of the oil field was in active circulation. No man had it longer than a day, and the Tuna Valley Bank, established January 1876, and standing alone in Bradford for two and a half years, had been and still was a busy financial hopper for the conver-

sion of checks into exportable currency. Everyone who could raise \$500, started a well and went in pawn for the other \$2,500 to complete it. Credit was easily obtained of the hardware men, who carefully examined the map for your lease, and gathered in as much as possible from your eager desire to give notes.

The Tuna Valley Bank at first charged $\frac{1}{4}$ per cent for cashing checks upon Oil City and other oil centers still retaining the capital of more conservative producers. Such checks, ranging from small amounts to tens of thousands, fluttered about like French assignats, and to cash them required the importation of currency daily. Thousands of drillers and other laboring men sent their wages away to their families, and every train bore crisp greenbacks into the safe retreats of exotic producers.

In those days of \$4.00 oil and 26 cent refined, the producer had money just as the slave has cotton; he was always in debt, and really working for the hardware man and for the Standard, the former getting first money every time. His notes were freely distributed for casing at \$1.00 (now 40 cts.) per foot, tubing at 25 cts. (now 13 cts.), and if he often forgot the dates of their maturity, certainly the holders could afford to do a portion of his book-keeping. The few notaries of Bradford had a steady income from protest fees. As the price of oil declined debtors became more careful, and found it profitable to maintain their credit. The protest of a note is now a serious matter for the maker, and rarely occurs.

It is in the nature of things that the activity and poverty of the operators, maintained a high rate of interest, and 12 per cent was the usual charge. There was no banker found who could take more, yet every other man was turned away. It is almost incredible that so many succeeded, even in living, among the active, energetic, hungry and scrippless army of the northern field. The men with half a dozen wells drilling and accounts and notes without end, walked into the frying-pan of the legitimate banker, and into the fire of the financial shaver. There were many of these portable banks, and not only portable, but adjustable to the needs of the victims. They were simply agents for money lenders, accountable for a certain rate of interest, and paid by any excess. They sometimes cut a note in two, as the saying went, and for loans at 12 per cent. exacted a fee of \$20 per thousand.

When impossible to effect a time loan, some

of the quick-witted operators bridged their financial danger by using short time drafts. For instance, A expected his oil run in five days, and needed money at once; he could draw on D of Oil City at ten days, or even less, who would pay the draft at maturity from the proceeds of a sight draft on A. Sometimes this shuttlecock system would be pursued for months, which shows the leniency of bankers, and their disposition to accommodate.

The plan was in danger of becoming too popular, when the failure of a large dry-goods firm in Jamestown, after exhausting the resources of draft credits on a large scale, effectually killed it. The interest charged on these transactions was always 12 per cent., and generally $\frac{1}{4}$ per cent. exchange, or $\frac{1}{8}$ per cent. with exchange, so that a ten day draft was discounted \$6.16 per \$1,000.

The profits of banking in the oil regions have been exceptionally great, and from the statements of the First National and Bradford National banks of Bradford, may be inferred that others, both there and in older fields have been unusually favored. The deposits in the banks of this northern metropolis are about \$2,000,000. When we realize that the McKean field alone has produced more than 95,000,000 barrels of petroleum, worth as many dollars, we see the producer in the role of Cassim's wife, catching a stray coin in his greasy bucket, out of the golden treasures of his Persian brother.

When the smiling features of the president of the American Transfer Co. first appeared in Bradford,

"The baby figure of the giant mass
To come,"

He was but one of many whose advent meant a division of spoils. The smallness of the share of the operator, in some degree is due to his failure to believe in the qualities of the field, and his desire to get territory before it was all developed.

Not that the deposits of the various banks make an exhibit of the earnings of the business, but we say that a host which has furnished 34,000 wells at a cost of at least \$150,000,000 should not now be scattering to the scanty pastures of other States. Even those still clinging to their well earned leases and production in these days of growing dawn, carry the remembrance of sudden surprises and reverses, and, living in hope, are still

"Like one that on a lonesome road,
Doth walk in fear and dread,
And having once turned round, walks on
And turns no more his head,
Because he knows a fearful fiend
Doth close behind him tread."

(To Be Continued.)

ON THE ORIGIN OF PETROLEUM.

BY LEOPOLD FIELD, F. C. S.

Quitting the consideration of those substances which are yielded to us by the perennially renewed productiveness of the modern earth, we come to a class of luminants which may be considered as treasures from the catacombs of the dead world—from the storehouses of the young sun's heat, garnered in a newly verdant vegetation. You will recollect that I drew attention to a great class of bodies which are now included under the common designation of paraffines, and which include such familiar substances as naphtha, bitumen, asphalt, petroleum, benzine and paraffine proper. Of the origin of these substances science affords us such ambiguous teaching, that it remains still open to anyone furnished with certain data to form his own theory on the subject. I have told you that marsh gas is a concomitant of slow organic decomposition, especially of vegetals. Now, as in the vicinity of all great sources of mineral luminants, gaseous jets are of very common occurrence, it is not unreasonable to suppose that once living organisms are the primary sources of the paraffines. Yet it will not do to adopt this theory too readily, as certain warrantable men have hazarded their opinions in a contrary direction. For instance, Berthelot—than whom none have a better right to speak—suggests the following hypothesis. Acting on the supposition that Daubree's theory of the presence of free alkalies in the earth's interior is correct, he presumes that the carbonic acid, with which the earth is impregnated, comes into contact with metallic sodium, forming acetylides. Steam, acting on these, would generate acetylene, and, under the circumstances of extreme heat and pressure, we might well presume that bituminous products could be aggregated, as we know that hydrogen acting upon acetylene produces olefant gas or ethylene. Thus we might presume that paraffines have been formed by purely mineral combinations, especially as we know that the reactions presumed to have there taken place can be exhibited with tolerable ease on the lecture table. We also know that hydrocarbons have a great tendency to molecular condensation. But the objection to this (and it is a very serious one) is, that the conditions of such extreme subterraneous heat and pressure can only obtain far below the strata in which the last vestiges of petroleum are found. We must, I think, conform to the organic theory, and grant

further that the sources of petroleum are various of their kind. For instance, Illinois limestone is found to be composed of corals, in each cell of which a small particle of oil is hermetically sealed up, for which it is impossible to account, otherwise than by supposing it to be the result of the decomposition of the animalcule under the pressure of its own gases. Professor Peckham believes petroleum to be the primary product of decomposition of animal and vegetal organisms, and that the viscid and solid compounds, as bitumen and asphalt, are the results of inspissation. In Ritchie County, West Virginia, a vertical seam of asphalt cuts a horizontal coal seam in yellow sand stone, which is supposed to be the solidified distillate of petroleum wells below, especially as oil and gas springs abound in the neighborhood. Petroleum is also found in the west of Canada, where there are no coal measures at all; this invalidates the theory of petroleum being always the product of distillation of coal by subterraneous heat, although, as we shall see afterwards, there are good grounds for supposing this to be probable in some cases. Petroleum exists in strata of all ages, from the lowest Silurian to the Tertiary. It has even been found in the Laurentian, which was supposed to be destitute of organisms until the discovery of the eozoon. In fossil shells it is frequently found. Orthocerata sometimes hold several ounces. In Western Pennsylvania, oil is found below the coal strata. In the Niagara limestone of Ohio, petroleum occurs, thick and tarry, in the cavities of shells. Ohio slate contains bitumen in thin plates, and oil springs are found in the bottom layers of sandstone overlying slate. As the animal remains in slate are too few to account for the quantity of bitumen found, we must suppose that in this case it is the product of decomposition of seaweed spores and drift. That tarry matter is sometimes considerably present in slate, is evident from the fact that the piers of the suspension bridge at Cincinnati, which are made of slate, drip with oil when the sun plays upon them. From these instances given of the heterogeneous sources of petroleum, you may judge how difficult it is to form any theory of formation which shall embrace all conditions in its hypotheses. It is generally conceded that the formation of coal is based on a different action, petroleum never having been found under such circumstances as to leave no doubt of its derivation from the decomposition of wood. The chemistry of petroleum is obscure, for we cannot tell

what its composition is before distilling; and yet, on the other hand, it is impossible to arrive at any ideas concerning its constitution without having recourse to that process. The composition of petroleum varies considerably, which points to the varied nature of its sources. For instance, in rocks of the Tertiary age, which contain fossil remains of complex organisms, we find a petroleum rich in nitrogen, and of putrescent odor, as the petroleum from the Miocene Coast Range, South California. Further, petroleum found in such rocks as contain low organisms is almost devoid of nitrogen.

One noteworthy fact must not be overlooked; that the incline of the various strata has much to do with the way in which petroleum is accumulated. It may be stated, as a general rule, that petroleum wells are only to be found at the bottom of inclined strata. Thus, in Canada, where the layers are horizontal, very little petroleum is found; whereas in Pennsylvania and Ohio, the oil-bearing rocks, which are just below the surface in Canada, dip beneath the Devonian and Silurian, which furnish reservoirs for the oil condensing above and percolating downwards. In this case, the petroleum may be presumed to be the product of subterranean distillation; in proof of which may be adduced the vast evolution of gas at such places.

In its natural condition, petroleum, as you see by a sample drawn from a Pennsylvania well is too dark and impure for any regular employment. To those circumstances, no doubt, it is due that the great uses of this wonderful oil remained so long unknown. The aborigines in North America knew it under the name Seneca oil. They used it with pigments to paint their skins, and also in their religious rites, which circumstance is mentioned by the commander of Fort Duquesne, in 1750. Seneca oil was sold largely as a medicine, being, no doubt, exceedingly efficacious in cutaneous disorders. Later on, we find the Dutch druggist vending "Haarlem Oil," also a petroleum. The gaseous form was used first to evaporate sea-water from salt. This was done nearly 40 years ago at Malta, Morgan county Ohio.

The duty on kerosene taken into Canada from the United States is \$3.50 a barrel. Canadian refined is quoted at 13 cents a gallon in car lots, and crude petroleum at 88 to 90 cents a barrel. Evidently Canada must have a Standard Oil Company of its own.

MODES OF TESTING REFINED OIL.

Owing to the great danger of burning in lamps such petroleum as has not been freed from the lighter hydrocarbons, the testing of petroleum oil has become a government office, and much labor and research have been spent in devising the best means of ascertaining the precise point at which the oil "flashes." By flashing point we understand the degree of temperature at which an inflammable vapor is given off; and, however heavy the bulk of the oil may be, if it contain any proportion, however small, of the lighter oil, it will ignite at the flashing point of the latter. There are two chief systems of testing, the one being known as the open test, which, from its simplicity, was much affected in the mining districts. I have here some petroleum in a tin vessel, which I place in this beaker of hot water, wherein is a thermometer. Passing this taper over the surface of the oil, I observe a blue flash—in fact, you see the petroleum has taken fire, and is blazing furiously. I pour a few drops of the blazing oil in water, and you will notice that, instead of extinguishing it, this process animates the flame. But this method is far too rough and ready, and contains too many sources of error, to be adopted where such vital interests are at stake. Without entering into the reasons which have led our government to adopt the instrument devised by Sir Fredrick Abel, for the accurate determination of the flashing point of light oils, I will give you a brief explanation of the apparatus itself. Its main objects are, to secure a uniform rate of heat and light, freedom from all air currents, and absolutely equal and constant conditions of testing. This copper vessel, six inches in diameter, and six inches deep, surrounded by an air chamber, is full of water, which is heated by a spirit lamp below. The receptacle for the oil is two inches in diameter, and fits into the lid of the outer vessel, being immersed in the water to the depth of one and a half inches. This is also surrounded with an air chamber, which conveys the heat from the water to the oil at a slow and uniform rate. The thermometer, with its bulb in the water, is fixed on the lid of the water vessel, and another thermometer enters the oil. Before commencing the experiment, the water is heated to 150 deg. Fahr. precisely; after which the increase in temperature from the lamp proceeds at the uniform rate of two degrees per minute. The lid of the oil cover is a tiny lamp, the flame of which is no larger than a pea. By a sliding in-

clined plane, the nozzle of this lamp is lowered into the oil receptacle, simultaneously with the withdrawal of the slide, while the proportion of air in the chamber is kept constant by a little hole in the side, which opens and shuts concurrently with that in the top. Every time an opening and shutting takes place, a mixture of oil vapor and air comes into contact with the flame. The time during which the slide is opened is determined exactly by the beats of a pendulum. At a certain point, a blue flash fills the interior of the oil cup, and the temperature of the thermomter denotes the flashing-point of the oil. According to the open test, the flashing point decreed as the standard of safety by the act of 1871, was 100 deg. Fahr., but Sir Frederick Abel, after a careful investigation of the conduct of oil which had been tested under those regulations, showed that, with this close test, the flashing-point was 27 deg. below that obtained by even the most careful open test. He, therefore, recommended 73 deg. as the standard of safety with his apparatus, and this has been adopted by the government. What I have said of petroleum refers, also, in a great measure, to paraffine oil; indeed the similitude between these two sources is very considerable; the difference lying mainly in the relative proportions of olefins and paraffins which they contain.—*Lecture Leopold Field, Soc. Arts.*

FAST DRILLING.

What is claimed to be the fastest drilling time under the casing, ever recorded, was made at John L. McKinney and Co.'s No. 2 well, Weston & Mersereau lot, finished on Sept. 6th. After the casing was in, 1,000 feet was drilled in six days. The well was finished at 1665 feet in fifteen working days from the time they began to spud. N. Donnelly and D. A. Beatty were the drillers, and J. M. Stoup and H. Donnelly tool dressers. Four Sunday hats, from Geo. R. McKinney, the superintendent, crown the pates of this model crew as a reward for their wonderful run.

San Fransisco received by sea and rail the following oils, from January 1st to July 1st, 1883:

EASTERN OILS—RECEIPTS.

Coal oil, cases, 154,577; coal oil, bbls., 265; lubricating oil, bbls, 149; lubricating oil, cases, 216; machine oil, bbls., 122; machine oil, cases, 46; naphtha, cases, 1,875; oil in glass cases, 90.

CALIFORNIA OILS—RECEIPTS.

Crude, cars, 148; crude, bbls., 404; crude, cases, 85; crude, drums, 107; coal oil, tanks, 348; coal oil, cars, 30; coal oil, bbls., 738; coal oil, cases, 1,731; coal oil, drums, 169; gasolene, drums, 138; gasoline, cars, 8; lubricating oil, cars, 3; lubricating oil, drums, 9; lubricating oil, cases, 24; lubricating oil bbls., 30; naphtha, cars, 1.

OFFICIAL STATEMENT. EXPORTS OF PETROLEUM, JULY, 1883.
BY JOSEPH NIMMO, JR., CHIEF OF BUREAU OF STATISTICS, WASHINGTON, D. C., SEPT. 10, 1883.

CUSTOMS DISTRICTS.	MINERAL CRUDE. (Including all natural oils without regard to gravity)		NAPHTHAS. (Including all lighter products of distillation.)		ILLUMINATING.		LUBRICATING AND PARAFFINE OIL.		RESIDUUM.		TOTAL.
	Gallons.	Dollars.	Gallons.	Dollars.	Gallons.	Dollars.	Gallons.	Dollars.	Gallons.	Dollars.	
Boston and Charlestown, Mass.	3,737,277	275,188	2,860	385	287,522	34,863	25,718	7,086	518,028	35,645	316,100
New York, N. Y.	721,679	31,055	1,720,265	120,824	30,680,314	2,710,391	593,649	140,721	518,028	35,645	37,249,533
Philadelphia, Pa.	.....	.....	171,370	8,997	8,906,887	753,766	4,500	1,050	.....	.....	3,282,469
Baltimore, Md.	.....	.....	.....	.....	182,697	14,264	29,081	5,080	.....	.....	9,804,136
San Francisco, Cal.	.....	.....	2,320	.....	22,770	4,221	800	707	.....	.....	211,778
All other districts	.....	.....	12,284	1,222	69,755	10,243	9,701	3,092	210	18	23,890
Total for July, 1883.	4,458,956	326,243	1,999,099	131,847	40,119,645	3,527,748	663,449	157,736	518,238	35,663	47,699,387
Total for July, 1882.	4,423,035	317,280	1,775,524	141,789	53,383,124	4,467,631	726,648	160,300	605,892	41,343	41,179,237
Total for 7 m ending July 31, '83	28,336,652	2,092,331	8,140,595	593,075	245,662,130	22,344,040	6,072,865	1,345,939	4,099,158	312,960	5,128,313
Total for 7 m ending July 31, '82	20,600,179	1,541,699	7,906,322	604,772	270,499,109	23,993,330	4,775,258	956,358	2,306,808	151,257	26,688,345

The well-known contractor, Thomas Percy, is drilling an eight inch salt well at Warsaw, N. Y., which will have nearly five time the capacity of ordinary wells.

THE DISTILLATES FROM CRUDE PETROLEUM.

The operation of distilling petroleum is conducted in large cylindrical retorts or stills, varying in capacity from 50 to 3,000 barrels, connected with a coil of wrought iron pipes submerged in a tank of water for the purpose of condensing the vapors as they arise from the stills. The first product of distillation is gases; at ordinary temperature they pass through the coils and escape without being condensed.

In order to collect these very light distillates ice and salt are packed around the condensing pipes, or they are condensed by means of a force pump. This product is called chymogene, and is of 110 deg. gravity. The next distillate would be rhigolene, of an average gravity of 95 deg., and is used as an anæsthetic. The evaporation of this fluid is so rapid at ordinary temperatures that it will depress the mercury in a Fahrenheit thermometer to 19 deg. below zero in twenty seconds. The third distillate would be gasoline, of an average gravity of 87 deg.; it is used in gas machines. The fourth distillate is naphtha, of an average gravity of 74 deg., and is used for street lamps and vapor burners. The fifth distillate is benzoline, of 64 deg. gravity; it has a variety of uses. The sixth distillate, being too heavy for refined or kerosene oil, is run into what is known as the stop tank. The seventh distillate, from 58 to 50 deg., is for refined oil, of 100 deg. flash test. The eighth distillate, from 50 to 42 deg. gravity, is for 150 deg. water-white oil, which is also sold under fancy brands, such as lunar, astral, electric light etc. The ninth distillate, from 42 to 38 deg., is united with the seventh distillate for 100 deg. flash-test refined oil. The tenth distillate is a very heavy paraffine, and being too heavy for refined oil, is pumped into the stop tank along with the sixth distillate, after which it is pumped back into the still along with a fresh supply of crude and again distilled. The eleventh product is the tar or residuum which remains in the still.

In actual practice one refinery does not make the entire list of distillates. Most, however, make the benzoline as well as refined oil, while the lighter distillates are disposed of to others for purification—who make a specialty of these lighter products, which are redistilled by means of steam, which deodorizes them; but the heavier ones, naphtha and benzine, to make them sweeter, are thoroughly agitated in an upright,

lead-lined tank called the agitator, with a certain per cent. of sulphuric acid. The agitation is effected by blowing air through the liquid by means of a pipe extending nearly to the bottom of the tank, by which means the acid removes any remaining offensive odors and makes the oil lighter in color.

After agitating and standing, there separates a dark red, tawny liquid, which is drawn off from the cone-shaped base of the agitator. This is what is known as sludge or spent acid, and is sold to manufacturers of fertilizers. The oil is then washed with alkali, then with water, which removes any remaining acid. The oil is then drawn off into shallow tanks, where it is bleached by the sun, after which it is ready for market. The 100 deg. flash and water-white oil has to undergo the same treatment with acid and alkali. All refined oil sold in this State (New York) has to stand a flash test of 100 deg.

The tar or residuum which remains in the still is drawn off into smaller stills of from ten to fifteen barrels capacity, connected with a condenser same as the still first described. The distillation is carried on in these stills until nothing but a coke or sort of asphalt remains, which has to be chipped out with a chisel. The principal product from this distillation is crude paraffine oil, but in some refineries where they do not reduce their tar too low in the first distillation, they obtain a 300 deg. fire-test burning oil as well as the crude paraffine oil. This 300 deg. fire-test burning oil is required by the United States government to be burned in all mail cars. It is sold under the brands of mineral seal and mineral sperm.

The crude paraffine oil obtained in this second distillation is first treated with acid, then distilled with caustic soda present in the still, the product being mostly dense paraffine oil. This is placed in wooden barrels in ice houses, where it remains from seven to ten days, during which time the paraffine wax crystalizes, so that the mass retains the form of the barrels when they are removed. It is now put into strong cloth bags, which are placed one above the other with sheets of iron between them, and, when submitted to heavy pressure, yield crude scale paraffine wax while heavy oil is pressed out, which is the paraffine oil sold for lubricating purposes, and is most adapted to light, rapid running machinery, such as spindles in cotton mills.

The wax is further refined by repeated solutions in naphtha recrystallizing, and pressing until it is perfectly white and pure, ready for market, but a modern process is to heat up and filter through animal charcoal. There is an earthen wax similar to the crude paraffine wax called ozokerit, mined in Austria, which is used for manufacturing candles; it is also found in Texas, California, and large deposits of it are found in Utah. In manufacturing heavy lubricating oils the same style still is principally used as the one first mentioned, also the same distillates are obtained, crude naphtha, benzoline, refined oil etc., but the oil is not reduced so low or to so small a quantity in the still as is done in distilling refined oil.

You will understand in running lubricating stills the product to be obtained is that which remains in the still. A lubricating oil of any desired fire test, cold test, or gravity, can be obtained by drawing the fires after running a specified time. For instance, we wish an oil to have 380 deg. fire test, 28½ deg. gravity, and 20 deg. cold test: we would keep the fires going under the stills until the time specified, when the fires are drawn and the still allowed to cool, after which the oil is barrelled and ready for market. This oil is used for lubricating railroad coaches, shafting, etc., but if we wish to obtain a very nice engine oil we would pump this oil from the still into the filtering-room, where it would be filtered through animal charcoal, after which we would have this light colored oil, which is considered equal to lard, and better than sperm oil as a lubricant. This, as well as all other mineral oils, will not corrode or eat the bearings or surface where it may be applied, as animal oils do. If we were to continue the distillation on, instead of stopping for this coach or engine oil, we should have this heavy oil which will not flow below 75 deg., has a gravity of 27 deg., and fire-test of 500 deg. This is used as a cylinder or valve oil for stationary engines. It is sometimes filtered through animal charcoal; the first product through the filter is perfectly white, the second is a little darker, and continues to darken until we obtain the third product, which is sold as cosmoline, vaseline, petroline, etc., and is used in its plain state as an unalterable base for ointments.

It has no affinity whatever for oxygen or moisture, and will never decompose, ferment, or become rancid in any climate or temperature. It is a wonderful remedial agent for every species

of soreness and inflammation. Our next product through the filter is this oil, which is a filtered cylinder oil for stationary engines. Were we to continue this distillation in the still longer, instead of stopping for this cylinder oil and cosmoline product, we would obtain this oil, which is the heaviest product of petroleum. It has a fire-test of between 650 deg. and 700 deg., a gravity of 23½ deg., and flows at 45 deg. This is used as locomotive cylinder oil, for tempering steel, etc.—*F. L. King, Rochester Acad. Science.*

Statistical History of Balltown and Cooper Districts.

Through the courtesy of the operators in the Cooper and Balltown districts, the painstaking scouts are enabled to make a weekly report of production of the districts. The gauges of these two districts which have appeared in the oil region press from week to week, were made by the oil investigators, who watch the progress of developments on the winding Tionesta. Each of the gauges recorded below, is the result of a rugged day's work by four men who are familiar with every by-path among the wells under the hemlocks.

BALLTOWN PRODUCTION.

Date.	No. Wells.	Barrels.	Rigs.	Drilling.	Total
April 28		983	10	10	20
May 8		970	..	..	18
May 11	11	1406	9	8	17
May 19	13	1146	7	8	15
May 25	14	1065	7	12	19
June 1	17	1689	7	8	15
June 9	17	1800	5	9	14
June 15	18	1851	5	10	15
June 22	20	2925	10	8	18
June 29	22	2499	11	7	18
July 6	23	2131	11	9	20
July 14	24	2063	7	13	20
July 21	25	2223	8	13	21
July 27	25	1983	9	14	23
August 4	31	3285	13	8	21
August 11	34	3586	12	7	19
August 17	35	4811	11	10	21
August 25	36	3328	11	12	23
September 1	37	3095	8	16	24
September 8	39	3287	11	15	26
September 15	41	4155	11	15	26

COOPER PRODUCTION.

Date.	No. Wells.	Barrels.	Rigs.	Drilling.	Total.
February 28	16	1599	..	..	..
March 10	22	3938	..	..	..
March 15	25	1941	..	..	..
March 21	25	1500	..	..	..
March 23	26	2403	..	..	..
March 27	27	2355	..	..	..
March 31	32	3939	..	..	..
April 11	37	4624	19	22	41
April 19	46	3234	14	28	42
April 28	47	4944	13	26	39
May 3	51	4224	..	..	..
May 11	60	4326	14	18	32
May 19	63	4632	17	22	39
May 25	68	4007	14	19	33
June 1	75	5011	13	20	33
June 9	78	4881	19	17	36
June 15	82	4140	15	22	37
June 22	85	4032	13	18	31
June 28	85	3735	15	17	32
July 6	90	3994	15	11	26
July 13	93	3306	18	11	29
July 20	97	3401	21	8	29
July 27	98	3714	17	12	29
August 4	99	3129	20	15	35
August 10	101	3250	18	17	35
August 17	102	3279	16	19	35
August 24	106	3407	14	16	30
August 31	111	3811	13	12	25
September 7	111	3066	13	15	28
September 14	116	2939	13	12	25

PETROLEUM EXPORTS.

THE exports of refined, crude and naphtha, from the five principal United States ports, from Jan. 1 to Sept. 8, for the years 1882 and 1883, were as follows:

	1883. GALLONS.	1882. GALLONS.
From Boston	3,419,695	4,809,224
Philadelphia	51,291,398	64,552,554
Baltimore	5,890,055	8,077,656
Richmond	173,449	382,239
Total	60,774,597	77,821,673
From New York	287,754,703	276,139,273
Total exports from U. S.	348,529,300	353,960,946

The appended table from *The Shipping List*, of September 15, gives the total exports of refined, crude, naphtha and residuum from New York to foreign countries for the present year up to the 15th of September, and for the same period of time of the year preceding.

	1883.	1882.
REFINED.		
GREAT BRITAIN.—London	25,899,485	18,932,096
Liverpool	5,591,027	6,018,256
Bristol	1,809,984	2,659,485
Ireland	3,929,227	4,240,706
Other ports	4,272,103	3,612,182
GERMANY.—Bremen	32,225,484	31,191,926
Hamburg	27,106,998	27,604,512
Konigsburg and Stettin	4,480,870	10,150,033
Dantzig	931,004	1,630,292
Other Ports	835,570	1,282,805
FRANCE.—Marseilles		331,945
Havre		188,730
Norway and Sweden	6,801,429	6,726,372
Russia	1,539,156	1,609,272
Denmark	7,901,152	6,570,884
Belgium	28,978,906	18,185,174
Holland	10,020,983	9,189,602
Spain	142,770	5,000
Portugal	1,463,463	956,055
Gibraltar and Malta	1,516,140	456,580
Italy	1,172,459	1,050,235
AUSTRIA.—Trieste, etc	8,739,636	9,264,127
Greece	1,280,410	379,300
Turkey in Europe	2,655,891	3,522,839
Turkey in Asia	2,890,742	1,112,300
India, Siam, etc	10,736,530	18,315,600
China, Japan, etc	19,004,610	22,583,340
East Indies	24,233,050	22,265,195
AFRICA.—Alexandria, etc. E	1,922,970	1,159,600
Canary Islands	94,345	102,808
Other Ports	4,295,319	3,051,184
Australia	1,349,124	2,057,254
New Zealand	386,300	490,128
Sandwich Islands	202,500	55,008
SOUTH AMERICA.—Brazil	3,803,047	3,450,578
Argentine Confederation and Uruguay	2,993,370	2,575,083
Chili and Peru	1,114,400	1,231,810
U. S. Columbia	191,422	147,355
Venezuela	458,147	305,346
Other Ports	114,461	109,490
Central America	130,954	130,585
Mexico	989,224	730,286
British North American Colonies	659,153	319,097
Cuba	182,507	706,934
British West Indies and British Guiana	1,212,514	1,023,905
Other West Indies	692,675	953,801
Total	Galls. 256,951,511	248,701,147
CRUDE.		
FRANCE.—Havre	5,967,867	4,768,555
Marseilles	2,239,389	1,460,678
Bordeaux	1,451,006	1,228,620
Dunkirk	4,514,748	2,932,266
Other Ports	5,196,538	4,450,504
Antwerp		
Bremen	753,616	746,135
Norway and Sweden	62,374	148,235
Spain	7,591,745	8,449,999
Cuba	1,280,735	1,931,303
Other Ports	2,193,471	
Total	Galls. 31,251,489	26,116,295
NAPHTHA.		
Great Britain	3,493,360	4,133,125
France	2,626,497	3,170,174
Germany	1,561,081	862,803
Other Europe	1,508,878	1,070,887
Various Ports	64,630	126,770
Total	galls. 9,254,446	9,363,759
RESIDUUM.		
To all Ports	1883. 4,703,571	1882. 2,876,969
GALLONS.		
Total Refined since January 1, actual shipments	256,951,511	342,602,015
do do do do crude equivalent	31,251,489	
do Crude do do actual shipments		31,251,489
Grand Total Crude and Crude equivalent	galls. 373,853,504	
Same time, 1882		357,717,824

The following table shows the number of vessels, loading and to load with Petroleum at the three principal American shipping ports, Sept. 15.

PORTS.	CRUDE.	REF.	REF. CASES.	NAP. & RES.	TOTAL.
New York	19	74	35	12	140
Philadelphia	1	18	17	2	38
Baltimore	—	12	—	1	13
Total	20	104	52	15	191

THE REFINED MARKET.

There was but little activity noticeable in the refined market during August. Buyers were not numerous and seemed inclined to wait until some concessions were made. Refiners were inflexible in their demands, however, and the market maintained a steady figure. The export demand, until the very latter end of the month, was quite light. On August 27th, New York refiners were asking 7½ for 110 test, 7⅝ for 70 degree Abel, and 7⅞ for Royal Daylight. Refined in cases, same date, was quite firm at from 9 to 10¼ for the different brands. On the 29th prices were advanced ⅛c per gallon, and a marked disposition on the part of exporters to purchase began to manifest itself. On the last day of the month a further advance occurred, and sales were made at 7⅞ for 110 test, 8 for 70 degree Abel, 8⅜ for Royal Daylight and 8⅞ for 120 test. The demand for refined in cases began to pick up and prices were advanced to 9¼@10⅞ for the various brands. The discriminating duty against American refined in France has been considerably reduced, and heavy purchases were made by the trade at Havre and Marseilles. The domestic market has shown itself in sympathy with the foreign, and the home demand is on the increase. The demand from the Mediterranean ports has decreased somewhat, but many old contracts are still to be filled.

	New York.	Philadelphia.	Baltimore.	London and Liverpool.	Bremen.	Antwerp.
	Cts.	Cts.	Cts.	Pence.	Marks.	Francs.
W 1	7⅞	7⅞	7¼	6½	7 45	18¾
T 2	7⅞	7⅞	7¼	6½	7 45	18¾
F 3	7⅞	7⅞	7¼	6½	7 35	18¾
S 4	7⅞	7⅞	7¼	6½	7 35	18¾
M 6	7⅞	7⅞	7¼	6½	7 35	18¾
T 7	7⅞	7⅞	7¼	6½	7 35	18¾
W 8	7⅞	7⅞	7¼	6½	7 35	18¾
T 9	7⅞	7⅞	7¼	6½	7 35	18¾
F 10	7⅞	7⅞	7¼	6½	7 35	18¾
S 11	7⅞	7⅞	7¼	6½	7 35	18¾
M 13	7⅞	7⅞	7¼	6½	7 35	18¾
T 14	7⅞	7⅞	7¼	6½	7 35	18¾
W 15	7⅞	7⅞	7¼	6½	7 35	18¾
T 16	7⅞	7⅞	7¼	6½	7 70	19¼
F 17	7⅞	7⅞	7¼	6½	7 70	19¼
S 18	7⅞	7⅞	7¼	6½	7 70	19¼
M 20	7⅞	7⅞	7¼	6½	7 70	19¼
T 21	7⅞	7⅞	7¼	6½	7 70	19¼
W 22	7⅞	7⅞	7¼	6½	7 70	19¼
T 23	7⅞	7⅞	7¼	6½	7 70	19¼
F 24	7⅞	7⅞	7¼	6½	7 70	19¼
S 25	7⅞	7⅞	7¼	6½	7 70	19¼
M 27	7⅞	7⅞	7¼	6½	7 70	19¼
T 28	7⅞	7⅞	7¼	6½	7 70	19¼
W 29	7⅞	7⅞	7¼	6½	7 65	19¼
T 30	7⅞	7⅞	7¼	6½	7 65	19¼
F 31	7⅞	7⅞	7¼	6½	7 65	19¼

STOCKS ABROAD.

Reports from London, Trieste and the seven principal continental seaports, showing the visible supply of petroleum at those points are summarized in the following statement:

	Aug. 25, 1883	Aug. 25, 1882
Stocks Afloat and Ashore.	Barrels.	Barrels.
London	495,335	413,627
Trieste	74,809	125,418
Seven Continental Ports	2,139,911	2,066,586
Total Stocks afloat and ashore	2,710,055	2,605,631
Increase in Stocks	104,424	

A detailed statistical table giving the stocks on hand, the stocks in vessels on the ocean and the amount unloading from the vessels at the different ports, is appended, which shows at a glance, the condition of affairs abroad and the increase or decrease as compared with the corresponding period of 1882.

STOCKS IN FOREIGN PORTS AUGUST 25, 1883.

	Stocks Week end'g Aug. 25		Stocks Afloat Week end'g Aug. 25		Unloading Week end'g Aug. 25		Grand Total Stocks Afloat & Unloading		Receipts. Jan. 1 to Aug. 25.		Shipments Jan. 1 to Aug. 25.	
	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.
London	312,397	442,765	60,730	45,570	40,500	7,000	413,627	495,335	485,074	501,740	259,765	301,077
Trieste	34,202	21,604	76,216	29,205	15,000	24,000	125,418	74,809	135,011	54,922	142,782	101,252
Bremen	760,118	917,548	28,707	36,657	28,000	52,500	816,825	1,006,705	832,792	658,064	462,432	496,657
Hamburg	362,545	314,953	58,334	45,665	28,800	32,000	447,679	392,558	687,209	607,333	377,674	491,101
Antwerp	244,465	257,533	114,905	72,471	46,800	71,500	406,170	401,504	406,878	449,577	392,883	378,896
Rotterdam	85,922	77,898	5,636	5,401	16,000	10,600	107,558	93,899	179,337	113,006	107,673	110,289
Amsterdam	51,561	53,813	4,423	19,357	19,000	10,000	74,984	83,170	112,912	130,972	102,267	125,660
Stettin	108,071	69,970	33,960	38,791	21,700	30,700	163,731	139,461	190,845	115,107	111,870	78,263
Danzig	38,659	13,114	10,980			9,500	49,639	22,614	47,043	34,258	51,873	45,792
Total	1,651,341	1,704,829	256,945	218,282	158,300	216,800	2,066,586	2,139,911	2,457,016	2,107,417	1,606,672	1,726,663

THE CRUDE MARKET FOR AUGUST, 1883.

Day of Week.	Day of Month.	Bradford.				Oil City.				New York.				Pittsburgh.			
		Opened.	Highest.	Lowest.	Closed.	Opened.	Highest.	Lowest.	Closed.	Opened.	Highest.	Lowest.	Closed.	Opened.	Highest.	Lowest.	Closed.
W	1	106 1/4	107 1/2	105 1/8	106 5/8	106 1/2	107 3/8	105 1/4	106 5/8	106 1/4	107 3/8	105 1/4	106 3/4	106 3/4	107 1/4	105 1/4	106 3/4
T	2	106 1/2	107 3/8	106	107	106 1/2	107 1/4	106	106 5/8	106 5/8	107 3/8	106 1/8	107 1/4	106 3/8	107	105 1/2	106 5/8
F	3	107 1/4	108 1/2	107 1/4	108	107	108 1/2	107	108	107 1/2	108 1/2	107 1/2	108 1/8	107 1/4	108 1/8	107 1/8	108 1/8
S	4	107 1/2	109	107	108 3/8	107 1/2	109	107 1/8	109	107 1/2	109	107 1/8	109	108	108 3/8	107 1/4	108 3/8
M	6	110 1/2	113	110	111 3/4	110	113 1/4	110	110 5/8	110	112 3/8	110	112	110	113 1/8	110	111 3/4
T	7	112	112 3/8	109 1/2	110 1/2	112 3/8	112 3/4	109 5/8	110 5/8	112 1/8	112 1/2	109 3/8	110 3/8	112	112 1/2	109 1/2	110 1/4
W	8	110	110 3/4	109 1/8	110	109 1/2	110 3/4	109 1/4	109 3/8	110	110 3/8	109 1/4	110	110	110 3/8	109 1/8	110
T	9	110 1/4	110 3/4	109 1/4	109 3/8	110 1/2	110 7/8	109 3/8	110 1/8	110	110 3/4	109 3/8	109 3/8	110 3/8	110 3/4	109 1/4	109 1/4
F	10	109	111 1/4	108 1/4	108 3/4	109 1/4	111	108 3/8	109	109 1/8	111	108 3/8	108 7/8	109	111	108 1/2	108 7/8
S	11	109	109 1/2	108 1/2	108 1/2	109 1/8	109 1/2	108 3/8	108 1/2	108 1/2	109 1/2	108 1/4	108 1/2	109	109 1/4	108 1/8	108 1/2
M	13	108 1/4	108 5/8	107 5/8	108	108 5/8	108 3/4	107 5/8	108 1/8	108 1/4	108 3/4	107 7/8	108 3/4	108	108 1/2	107 3/4	108
T	14	108 3/4	110 1/4	108	110 1/4	108 3/8	110 1/4	108 1/8	110 1/4	108 1/4	110 3/8	108 1/4	110 3/8	108 1/2	110 1/8	108	110 1/8
W	15	109 3/8	111 3/8	109	109 3/8	109	111 3/4	108 1/2	109 3/8	109 3/8	111 3/8	109	109 3/4	108 1/2	111 1/4	108 1/2	109
T	16	108 1/4	108	109 3/4	109 3/4	109	109 3/4	108 1/2	109 1/2	109 3/8	109 3/4	108 1/2	109 3/8	108 3/4	109 3/8	108 3/8	109 3/8
F	17	110 1/2	111 3/4	109 3/4	109 3/8	110	112	109 7/8	109 7/8	110 1/4	111 3/8	110	110	109	111 3/4	109	110
S	18	110 1/2	110 3/4	109 1/2	110	110 3/4	111	109 3/4	110	110 3/8	111	109 5/8	110	110 1/8	111 1/8	109 3/4	110
M	20	109 1/2	110 1/4	109 1/2	109 3/8	109 7/8	110 3/8	109 1/2	109 3/4	109 1/2	110 1/4	109 1/2	109 3/8	109 3/4	110 1/8	109 3/4	109 3/4
T	21	109 3/4	110 3/8	108	108	110	110 1/4	108 1/8	108 1/8	109 3/4	110	108 1/8	108 1/4	110	110	108	108 7/8
W	22	108	109 3/8	107 1/2	109 1/4	108	109 1/4	107 1/2	109 1/8	108	109 1/8	107 1/2	109	107 7/8	109 1/4	107 1/4	109 1/4
T	23	109 3/4	109 3/4	108 1/2	108 1/2	109 1/2	109 1/2	108 1/2	108 1/2	109 1/8	109 1/8	108 1/2	108 1/2	109 1/4	109 1/4	108	108 1/2
F	24	108 1/2	108 5/8	106 3/4	107	108 3/8	108 5/8	106 3/4	107	108 1/2	108 1/2	107 1/8	107 1/4	108 1/8	108 1/4	107	107
S	25	107	107 5/8	106 1/4	107 1/2	106 1/2	107 3/8	107 1/4	107 1/2	107	107 1/2	106 3/8	107 1/4	107	107 3/8	106 3/8	107 3/4
M	27	107 3/4	107 3/4	106 3/8	106 1/2	107 3/4	108	106 3/8	106 3/8	107 3/8	107 3/4	106 3/8	106 3/8	107 3/4	107 3/4	106 1/4	106 3/4
T	28	106 1/2	106 3/8	105 5/8	106 1/2	106 1/2	107	105 5/8	106 1/2	106 3/8	106 3/4	105 7/8	106 1/4	106 1/4	106 1/4	105 3/4	106 1/4
W	29	106 1/2	107 1/2	106 1/4	107 1/4	106 1/2	107 1/4	106 1/2	107 1/4	106 1/2	107 1/4	106 1/4	107 1/8	106 1/2	107 1/4	106 1/2	107 1/4
T	30	107 1/2	108 3/8	107 1/4	108	107 1/2	108 1/4	107 1/4	107 3/4	107 1/4	108 1/4	107 3/8	107 3/4	107 1/2	108 1/8	107 1/4	107 3/4
F	31	108 3/8	108 1/2	107 1/2	108 3/8	108 1/2	108 5/8	107 1/2	108 3/8	108 3/8	108 1/2	107 3/8	108 3/8	108	108 3/4	107 3/8	108 1/2

STOCKS, SHIPMENTS AND RUNS.

RUNS OR RECEIPTS.

PIPE LINE.	AUGUST 1883.	JULY 1883.
United	1,800,032.23	1,716,991.88
Tidewater	322,726.03	305,481.24
Octave Oil Co	3,821.52	3,532.32
Charley Run	116.81	116.81
Shaffer Run	683.75	683.75
Franklin (limited)	7,828.45	7,665.32
Total	2,135,208.79	2,034,471.32
Daily average	68,877.42	65,628.11
Total increased receipts		100,737.47

DELIVERIES OR SHIPMENTS.

PIPE LINE.	AUGUST.	JULY.
United	1,776,759.98	1,307,572.93
Tidewater	301,435.11	257,348.66
Octave Oil Co	3,762.43	3,848.71
Charley Run		
Shaffer Run	92.38	92.38
Franklin (limited)	4,437.57	5,544.41
Total	2,086,478.47	1,634,407.09
Daily average shipments	67,305.75	52,722.80
Excess of runs over shipments Aug.		1,571.67
Excess of runs over shipments, July		12,995.31
Excess of runs over shipments, June		12,183.86

STOCKS.

PIPE.	AUGUST.	JULY.
United	33,704,712.73	33,995,765.27
Tidewater	2,320,594.70	2,300,949.05
Octave Oil Co	4,452.53	5,489.84
Charley Run	3,986.81	3,986.81
Shaffer Run	28,052.75	28,052.75
Franklin (limited)	41,086.77	37,695.79
Total	36,102,886.29	36,371,939.51
Stocks, Decreased, August		269,053.22
Stocks, Increased, July		386,004.51
RUNS OR RECEIPTS.		SHIPMENTS OR DELIVERIES.
Daily Average August	68,877	67,306
Daily Average July	65,628	52,722
Daily Average June	70,443	58,259
Daily Average May	69,445	61,411
Daily Average April	69,207	63,612
Daily Average March	64,404	52,737
Daily Average February	65,208	44,352
Daily Average January	65,125	43,813

Franklinville, N. Y., wants an oil well, and her citizens have subscribed \$3,000 towards the project.

FIELD OPERATIONS SUMMARIZED.

Wells Completed, With the Estimated Production on the Last Day of the Month.

ALLEGANY.

Division of Field.	Wells.	JULY. Prod'n.	Dry.	Wells.	AUGUST. Prod'n.	Dry.
Scio	25	295	5	34	472	3
Alma	22	245	1	29	286	1
Wirt	2	25	.	4	36	.
Bolivar	24	192	1	34	258	3
Clarksville	6	68	.	2	20	.
Genesee	31	342	.	25	280	.
Totals	110	1167	7	128	1352	7

BRADFORD FIELD.

Division of Field.	Wells.	JULY. Prod'n.	Dry.	Wells.	AUGUST. Prod'n.	Dry.
E. & W. Branches	30	376	1	26	305	.
Kendall Creek	7	92	.	15	105	.
Foster Brook	6	55	.	12	121	.
Four Mile	6	120	.	7	62	.
Indian & Meeks Cr'k	5	54	.	28	282	1
Cole Creek	5	150	.	5	110	.
Kinzua	2	35	.	5	63	.
Miscellaneous	2	20	.	.	.	.
Total	63	902	1	98	1108	1

WARREN AND FOREST.

District	Wells.	JULY. Prod'n.	Dry.	Wells.	AUGUST. Prod'n.	Dry.
Glade	10	50	3	7	25	3
Clarendon	13	113	.	14	77	1
Tiona	12	83	1	11	68	.
Cooper	16	447	3	15	774	3
Balltown	4	975	1	12	1387	2
Total	55	1668	8	59	2331	9

LOWER COUNTRY.

District	Wells.	JULY. Prod'n.	Dry.	Wells.	AUGUST. Prod'n.	Dry.
Venango	12	121	2	14	61	6
Clarion	5	18	1	5	14	2
Butler and Armstrong	7	76	1	12	146	2
Total	24	215	4	31	221	10

GRAND SUMMARY.

District.	Wells.	JULY. Prod'n.	Dry.	Wells.	AUGUST. Prod'n.	Dry.
Allegany	110	1167	7	128	1352	7
Bradford	63	902	1	98	1108	1
Warren and Forest	55	1668	8	59	2331	9
Lower Field	24	215	4	31	221	10
Total	252	3952	20	316	5012	27
July Total				252	3952	20
Difference				64	1060	7

Rigs Up and Building.—Wells Drilling.

ALLEGANY FIELD.

Division of Field	AUG. 1, 1883. Rigs.	Drilling.	Total.	SEPT. 1, 1883. Rigs.	Drilling.	Total.
Scio	20	29	49	21	36	57
Alma	31	21	52	31	41	72
Wirt	2	4	6	3	2	5
Bolivar	19	24	43	31	35	66
Clarksville	5	3	8	7	8	15
Genesee	28	17	45	27	22	49
Miscellaneous . . . . .	.	3	3	.	.	.
Total	105	101	206	120	144	264

BRADFORD FIELD.

Division of Field.	AUG. 1, 1883. Rigs.	Drilling.	Total.	SEPT. 1, 1883. Rigs.	Drilling.	Total.
E. & W. Branches	23	23	46	31	23	54
Kendall Creek	12	9	21	6	7	13
Foster Brook	7	6	13	13	8	21
Four Mile	11	6	17	12	9	21
Indian Creek	21	11	32	17	16	33
Cole Creek	2	1	3	4	4	8
Kinzua	8	1	9	9	9	18
Miscellaneous	5	4	9	.	.	.
Total	89	61	150	92	76	168

WARREN AND FOREST.

Division of Field.	AUG. 1, 1883. Rigs.	Drilling.	Total.	SEPT. 1, 1883. Rigs.	Drilling.	Total.
Glade	4	3	7	9	14	23
Clarendon	10	10	20	8	23	31
Tiona	8	8	16	2	12	14
Cooper	17	12	29	12	12	24
Balltown	9	14	23	8	16	24
Total	48	47	95	39	77	116

LOWER COUNTRY.

County.	AUG. 1, 1883. Rigs.	Drilling.	Total.	SEPT. 1, 1883. Rigs.	Drilling.	Total.
Venango	10	9	19	6	9	15
Clarion	2	5	7	2	7	9
Butler & Armstrong	16	19	35	10	17	27
Total	28	33	61	18	33	51

GRAND SUMMARY.

Field.	AUG. 1, 1883. Rigs.	Drilling.	Total.	SEPT. 1, 1883. Rigs.	Drilling.	Total.
Allegany	105	101	206	120	144	264
Bradford	89	61	150	92	76	168
Warren & Forest	48	47	95	39	77	116
Lower Country	28	33	61	18	33	51
Total	270	242	512	269	330	599
Total Aug. 1st				270	242	512
Difference				1	88	87

SUMMARY of United Pipe Line statements for July and August, 1883.

	August. Barrels.	July. Barrels.
Receipts, all sources	1,800,032.23	1,716,991.88
Deliveries	1,776,750.98	1,367,572.93
Gross Stocks	36,227,589.03	36,424,622.82
Sediment and Surplus	2,522,876.30	2,428,857.55
Net Stocks	33,704,712.73	33,995,765.27
Outstanding Acceptances	27,937,602.52	27,873,375.77
Credit Balances	5,767,110.21	6,122,389.50

SUMMARY of the Tidewater Pipe Line statement for August, 1883.

	August. Barrels.	July. Barrels.
Quantity of crude petroleum in custody at beginning of August		2,300,949.05
Quantity of crude petroleum in custody at close of August	2,463,037.22	
Less sediment and surplus	142,442.52	2,320,594.70
Receipts during August		322,726.03
Deliveries during August		391,435.11
Outstanding certificates, accepted orders, etc		1,781,000.00
Credit Balances		539,594.70
Total liabilities Aug. 31, 1883		2,320,594.70

THE CLEARANCES.

Business at the various exchanges was not quite so heavy the past month as during the month preceding. The heavy dealers seemed to be out of the market entirely, and summer vacations succeeded in thinning down the rank and file of the brokers to a considerable extent Oil City still leads in the volume of transactions, but the business of the two New York exchanges will surpass in amount that of any of the other cities. Following is the record as shown by the different Clearing House statements.

	August. Barrels.	July. Barrels.
Bradford, Oil Exchange	115,380,000	113,382,000
Bradford, Prod. Pet.	27,120,000	36,412,000
Oil City	200,062,000	229,248,000
New York, N. Y. Pet	140,330,000	146,152,000
New York, National	117,382,000	113,416,000
Pittsburgh	110,374,000	125,880,000
Total	710,648,000	764,490,000

We learn that the United States Vapor Fuel Company claim to produce by their process over 275,000 cubic feet of pure fuel gas from one barrel of petroleum, 42 deg. gravity. This fuel is a perfectly pure carburetted oxyhydrogen vapor, a fact of the utmost importance to every industry using coal, to all metallurgists and workers in metal and glass particularly.—*N. Y. Mining News.*

THE PETROLEUM AGE.

DEVOTED TO THE

Interests of the Petroleum Trade.

PUBLISHED MONTHLY AT

BRADFORD, PA.

BY McMULLEN & SNELL.

W. C. ARMOR, MANAGER.

J. C. McMULLEN.

A. L. SNELL.

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THE PRODUCING REGION.

THE ALLEGANY FIELD.

The volume of new work continues large in the Allegany field, but most of it is found on the gas territory and along the ragged edge of the development. More than 100 new wells have been added to the producing list, during each of the months of June, July and August, but in spite of the augmentation, the production has not increased. To a certain extent it is believed the excessive drilling on the outskirts of the field has cut off the source which supplied the old wells, and, in a measure, hastened their decline. The gauge books of a number of producers, show heavy percentages of decline in the old wells during the summer months, and had this not been the case, the production must have been increased. Reports of stocks at wells show that the daily production of the field during the past three month has ranged between 12,000 and 13,000 barrels, nor is it likely to increase unless territory more productive is discovered. During August, 128 wells were finished of which number seven were dry. According to the reports of the owners, these wells, on the last day of August, were producing 10½ barrels to the well. Away to the east and north-east, operators are looking for oil in the Richburg sand. F. M. Leasure completed a dry hole on lot 107, Independence. The work of finding the bordering line between the dry holes on lot 35, Scio, and the pool north of Allentown is now progressing. In what is termed South Alma some light territory exists, running in a north-easterly direction from lot 53. Operators are figuring on a cross streak extending from the development on Duke & Norton hill to South Alma, through Pikeville. The Canfield field well, on lot 142, in the village of Pikeville, was producing nine barrels on the last day of the month.

The four wells about the old Waugh & Porter

well, on lot 34, Bolivar, are producing 15 barrels daily. The drilling in Genesee is found along the southern side of the defined field, extending from Bolivar to Rock City.

The presence of salt water in many wells is interfering with their flowing, and the demand for sucker rods is increasing. In some sections of the field water remains suspended in the oil, and steaming has been a necessity in the summer months. While the drill continues to be urged at the present pace, no marked changes are expected in this field.

THE BRADFORD FIELD.

The drilling now being done in the Bradford field is confined in the main to a few large firms. These companies control the lion's share of the undrilled lands, which are nearly all found within well defined borders.

North and west of State Line, on the O. B. & W. railroad, there is some room for prospective work. Operators are seeking for a narrow extension north of the Brambly well, on the Four Mile. Two prominent firms have undrilled territory on Meeks and Indian Creeks. At the headwaters of Indian Creek and the Kansas Branch, the Forest Oil Company have space for further rock perforations. At the Cole Creek front, along the East Branch and on the Big Shanty streak more new production will be brought to the surface. During the months of June and July the production of the Bradford field declined. In that time it was lurking about 35,000 barrels. In the month of August, 1881, the yield of the Bradford district, as demonstrated by the producers' stock report, was about 70,000. In the intervening months there has been a decline of one-half from the above figures. The field in many localities has a broken-down air, and throughout the broad domain the footfalls of decay may be heard. It still furnishes more than one-half of the oil which illumines the world, and when its crude currents have ceased to flow the place has not yet been found which can duplicate them at so cheap a rate. The daily average pipe line runs for August were 37,165 barrels. Stocks at wells were reduced, but at this writing, September 13, enough reports have not been received to make an estimate on the August production. There were ninety-eight wells finished during August. Of the ninety-two rigs up and building fourteen had been standing thirty days or more.

WARREN AND FOREST.

The experimental work of the the Pennsylvania and New York oil regions which attracts

the attention of the trade is confined to Forest and Warren counties. Dew Drop, Wardwell, Cooper and Balltown are scanned for new features by oil men. Oil is found in so many different sands and under such remarkable circumstances in these counties that it is difficult to tell when prospective work will be at an end. The Dew Drop field is furnishing some wells as good as those found in the Clarendon field. The oil found here is classified with that of Glade, Sheffield and Cherry Grove, as far as color is concerned. The Clarendon, Tiona and Stoneham oils are kept separated by the pipe lines on account of some good qualities which they possess. The Wardwell strike has hastened the drill in that locality. Parties who have examined the section state the sand and that of Stoneham are on the same level. At this point, which is on the Allegheny river, between Warren and Kinzua village, a row of derricks stands on either side of the stream. The 550 wells in the Stoneham, Clarendon and Tiona developments were averaging about three barrels each per day during August. The production of the Warren and Forest, or Middle Field, i. e. the section extending from Kinzua village to Balltown, is estimated at 10,000 barrels per day in August. The production of the Cooper tract on the 14th of September from 116 wells was 2,939 barrels. At the present writing, September 15th, the section north of the Cooper tract appears to be irregular in its geological make-up, and full of surprises. Like the Allegany field it has a ragged edge on its northern border. The Syndicate No. 8, south of the McCalmont No. 10, on the Henry lands, was dry in the second sand, though only a short distance south of the largest second sand well ever found in the Cooper district. It produced 400 barrels the first day after being drilled into the third sand. Fertig & Henne are drilling a well east of the Cooper tract, along the banks of the Tionesta, 1,200 feet north of the Forest county line. They are prospecting for a third sand streak running east of the McKinney well, on the Williamson. The mystery men are drilling a wildcat well on the south-western corner of lot 398, to test the country lying between the Cooper development and the Barnsville gasser. The drill has been started at a well on lot 313, east of the Sheffield gas wells. The territory immediately west of these gas wells has been found barren of oil. It now remains to make a test of the section contiguous, and to the east. Both wells will be handled by professional mystery makers. The Haight well, on lot 3,198, is a heavy gasser. In the future there

will be seekers of the crude drilling to the south-west of this well. The table setting forth the weekly gauges of the Cooper tract indicates that she has passed the zenith of her production.

BALLTOWN.

A glance at any of the maps picturing the Balltown field shows a streak of oil about four miles in length with a demonstrated width at various points of a half mile. This is the amount of territory now in sight with possibilities of an extension in either direction. In round numbers this development would have an area of two square miles, or 1280 acres. Cherry Grove furnished a crude checker board, comprising an area of about 2,000 acres, and on it was played the wildest game chronicled in petroleum history. The axis of the Balltown belt has a magnetic bearing, ranging between a 45° and $63^{\circ} 20'$ line. From Grandin, Kelly & Co.'s No. 3 well, which tapped the sand August 24th, 1882, and gave rise to the present field, the belt has been traced 256 rods to the southwest as far as No. 14, on the north bank of the Tionesta. This well is west of a line drawn through the row of best wells on lot 5236, and there is a chance for an improvement one location to the east. There is a difference of opinion in regard to this well being at the end of the streak. The oil came from the top of the sand, which had a thickness of 22 feet. Not more than two or three feet of this rock was soft and productive. The well started at 250 barrels September 3d, and was producing 150 on the 15th. Mr. Richards, superintendent for Grandin, Kelley & Co., believes that No. 14 is on the side rather than at the end of the belt. The Balltown Oil Co.'s No. 11 and their No. 13, on lot 4821, indicate clearly that the rich streak extends between the Brush Run and Porcupine Run wells. The completion of these wells explodes the theory of two pools. No. 13 tapped the sand September 17, and was drilled deeper on the 18th, when it began flowing steadily at 80 barrels per hour. Porcupine Oil Co.'s No. 9, on lot 3194, is on the rich lead which is supposed to border the western edge. The Porcupine Oil Co.'s No. 11, 1,200 feet from No. 4, the Duke & Harris well on the south-eastern corner of lot 744, Miller, Vandergrift & Co., on the southwestern part of 731 and Briody & Co.'s well on the southeastern corner of lot 718 are likely to furnish governing points for an outline of the northeastern end of the field. When Cherry Grove was a year old the total pipe line runs from the field aggregated 2,733,684 barrels. It is not likely to produce 2,000 barrels of oil per acre. How much more than 2,000,000 barrels of oil can be expected from the Balltown field? Cherry Grove and Balltown contiguous fields, will never produce oil enough to illuminate the world for 100 days. The Balltown development is controlled by three companies who will operate it judiciously. It is a bonanza to them but not one-sixtieth as large as the Bradford district.

AUGUST OPERATIONS.

THE ENTIRE REGION,—WELLS COMPLETED, WELLS DRILLING, AND RIGS UP, AND BUILDING.

WELLS COMPLETED.**Bradford Field.***East and West Branches.*

Tract.	Owner.	Barrels.
Pike, Capt. J. T. Jones, No. 7.		12
Newell, Capt. J. T. Jones, No. 12.		12
Hawkins, P. C. L. & P. Co. & Kennedy.		10
Mitchell, Martin & Gillespie No. 3.		10
Freeman, Chapin, No. 8.		8
Freeman, Leopold Bros. & Co.		10
Dent, P. C. L. & P. Co., No. 44.		15
Dent, P. C. L. & P. Co., No. 45.		15
Dent, Whitney & Wheeler, No. 28.		20
Dent, Whitney & Wheeler, No. 29 est.		20
A. Foster, Freeman & Sherman, est.		3
B. I. Taylor, Harper & Co. est.		10
Fox, Phil. W. Roth, est.		5
Fox, Barnsdall & Kearns.		10
Tunungwant, T. N. Barnsdall, No. 8.		10
Minard Run Tract, (Owners of Minard Run Tract) No. 99.		14
Bingham, G. H. Van Vleck, No. 19.		15
Bingham, G. H. Van Vleck, No. 20.		15
Bingham, Bayne, Fuller & Melvin, No. 55.		20
Bingham, Goettel Bros., est.		8
Blair, J. J. Carter, No. 21.		10
Blair, J. J. Carter, No. 5.		10
Blair, J. J. Carter, No. 10.		10
Owens, Clark & Owens, est.		10

Quintuple.

Lot 73, James Smith, est.	10
273, Richards Co., & est.	10
Wells	26
Production	305

Kendall Creek.

Buchanan, Wood & Co., est.	8
Bingham, Trio Oil Co.,	4
Bingham, Applebee & Fischer, est.	10
Kilbury, Kilbury & Williams, No. 6.	10
Oak Shade Purchase, B. & B. O. Co.,	10
E. T. Co., Chapin & Co., No. 10.	10
E. T. Co., Anchor Oil Co., est.	10
Whipple, Col. J. J. Carter, No. 47.	20
Whipple, Col. J. J. Carter, No. 48.	20
Kellogg, Flisher & Farrel, est.	12
Duke, Chas. Duke,	10
Duke, Randall & Co.,	8
Gridley, Gridley, est.	3
Moore, Ege Oil Co., No. 9.	15
Moore, Turner, No. 1.	15
Wells	15
Production	165

Foster Brook.

E. T. Co., Enterprise Transit Co., No. 74.	12
Willets, Young & Willets.	15
Angell Oil Co.'s Tract, Smith.	10
Foster, C. H. Foster.	10
Foster, C. H. Foster.	8
Bradley, Hazelwood Oil Co, est.	10
Tait, Thos. Tait, est.	8
C B & H, Smith & Foley.	12
C B & H, Watson Oil Co No 22.	10
C B & H, Caldron & Wolf.	10
C B & H, Crippen & Kittenger.	6
C B & H, Johnson & Kittenger.	10
Wells	12
Production	121

Four Mile.

Donahue, Ellis Coleman & Co.	8
Firkler, Franchot Bros, No 2.	10
J Moultrous, John Coast.	8
Geizer, Jacob Geizer, No 2.	6
Johnson, E M Johnson.	10
Van Campen, Geo Van Campen, No. 99.	10
Van Campen, Merrill & Perrin.	10
Wells	7
Production	62

Indian Creek.

Loup, Hazelwood Oil Co, No 32, est.	10
Loup, Hazelwood Oil Co, No 33.	10
Loup, Hazelwood Oil Co, No 34.	10
Loup, Hazelwood Oil Co, No 35.	10
Dodge, Shear Bros.	10
Barse, G V Forman, Agt Union Oil Co.	15
Barse, Bussell.	8
Campbell, Forest Oil Co, No 4.	10
Keating, Forest Oil Co, No 38.	10
Keating, Forest Oil Co, No 39 est.	10
Simms, Bradford Oil Co, No 31.	10
Simms, Bradford Oil Co, No 32.	10
Simms, Bradford Oil Co, No 33.	10

Tract.	Owner.	Barrels.
Simms, Bradford Oil Co, No 34.		10
Simms, Bradford Oil Co, No 35.		10
Simms, Bradford Oil Co, No 36.		10
Simms, Bradford Oil Co, No 41.		10
Pine Lot, Brown & Reid, est.		8
North Branch, J D Downing & Co, No 25.		15
North Branch, J D Downing & Co, No 26.		15
North Branch, J D Downing & Co, No 27.		15
North Branch, J D Downing & Co, No 28.		15
Shattuck, Emery Oil Co, No 4.		3
Campbell, R G Baily, No 9, est.		10
Pine Lot, R G Baily, No 4 est.		10
Meek's Creek, Newton Lands, J L McKinney & Co, No 32.		6
Meek's Creek, Newton Lands, Gailey Bros.		18
Canal Station, N Y & Penn'a Oil Co.		dry
Wells		28
Production		283
Dry		1

Cole Creek.

Lot 399 Bingham, Forest Oil Co, No 24.	20
494 Bingham, G V Forman & U O Co No 8.	30
439 Bingham, G V Forman & U O Co, No 13.	30
439 J L McKinney & Co, No 33.	15
439 W W Thompson.	15
Wells	5
Production	110

Kinzua.

Kinzua Pur, Union Oil Co, No 39.	20
Bingham, Riter & Conley, est.	15
Bingham, Everett & Co, No 20, est.	10

Dew Drop.

Dew Drop, Mumford & Co, est.	10
Dew Drop, Van Scoy & McFarland, est.	8
Wells	5
Production	63

Allegheny Field.*Scio.*

Lot.	Owner.	Barrels.
Lot 1 Manhattan Oil Co.		12
1 Lovell & Day, No 5.		25
1 Lovell & Day, No 8.		25
1 Lovell & Rumsey, No 9.		12
1 Lovell & Rumsey, No 10.		12
1 Lattimer & Phillips, No 2.		10
1 Phillips Bros, No 1.		10
1 Applebee & Co, No 1.		15
1 Waco Oil Co, No 1.		12
2 Farrel & Snyder.		11
2 Farrel & Snyder.		10
2 Lee & Apple, No 1.		11
2 Hardison & Co.		14
2 E S Garret.		10
2 Shirley & Hostetter, No 10.		25
2 Shirley & Hostetter, No 11.		26
2 Shirley & Hostetter, No 12.		25
2 Shirley & Hostetter, No 13.		25
2 Shirley & Hostetter, No 14.		10
2 Coast Oil Co, No 10.		15
2 Coast Oil Co, No 11.		15
2 Coast Oil Co, No 16.		12
2 Coast Oil Co, No 17.		17
2 Young & Co, No 14.		25
2 Young & Co, No 15.		20
2 Young & Co, No 16.		15
2 Ackerly & Barton.		15
2 Ackerly & Barton.		12
3 Baldwin & Co, No 7.		10
4 Minnow Oil Co, No 7.		4
11 Anderson & Greenlee.		15
11 Anderson & Greenlee.		10
35 Empire Gas Co.		dry
107 Independence.		dry
Cuba, Vandergrift & Co.		dry
Wells		35
Production		472
Dry		3

Alma.

Lot 2 Church & Whitcomb, No 1.	8
2 Hazelwood Oil Co, No 16.	10
2 Hazelwood Oil Co, No 17.	10
2 Hazelwood Oil Co, No 18.	10
2 Hazelwood Oil Co, No 19.	10
2 Hazelwood Oil Co, No 20.	10
2 Hazelwood Oil Co, No 21.	10
4 Fertig Bros, No 21.	10
4 Thompson & Matson, No 3.	10
4 Crane & Odell.	10
17 Carlin Bros, No 2.	10
17 Manning Bros & Co, No 1.	12
18 G M Barney, No 5.	15
28 Manhattan Oil Co.	10
18 Patty & Alshouse, No 2.	10
18 Patty & Alshouse, No 4.	10
20 Long Time Oil Co, No 6.	8
20 Long Time Oil Co, No 7.	8
21 Bennett & Co No 1.	15
21 Riter & Conley, No 1.	5
22 Duke & Norton, No 36.	12
22 Duke & Norton, No 37.	12

Tract.	Owner.	Barrels.
24 Vance & Co.		10
24 Cheeseman & Flannigan.		10
27 Chamberlin.		dry
38 Charles Campbell.		12
40 Portland Oil Co, No 3.		10
40 Donnell Oil Co.		10
142 Canfield & Co.		9
Wells		29
Production		286
Dry		1

Wirt.

Lot 34 Wellman, Miner & Fuller, No 11.	10
34 Patty & Bliss.	10
34 Smith & King.	6
41 Riley Allen & Co.	10
Wells	4
Production	36

Bolivar.

Lot 5 R J Walker.	10
6 Manhattan Oil Co.	10
6 Pentzer & Co, est.	8
6 McCoy & Weeter.	10
6 Star Oil Co.	8
7 (Vosburg) Manhattan Oil Co.	10
7 Applebee & Co.	8
7 Dow & Grace.	6
7 W & J Duke, No 4.	10
7 W & J Duke, No 5.	10
7 Coast Oil Co, No 3.	10
7 Coast Oil Co, No 4.	10
7 Coast Oil Co, No 5.	10
8 Chase & Mallory.	6
8 Hopkins & Co.	8
8 Hopkins & Co.	8
14 Jeff Boggs.	5
14 J D Downing No 1.	dry
14 J D Downing, No 2.	dry
14 J D Downing, No 3.	3
14 Empire Gas Co, No 4.	3
14 Empire Gas Co, No 5.	5
15 A L Robertson.	8
22 Bovaird & Seyfang.	dry
31 Fritts, Lowrey & Wilson.	10
31 Conroy & Johnson.	8
38 Hanley & Oshea, No 11.	8
38 Hanley & Oshea, No 12.	8
38 Stewart & McDonell.	8
39 Wellman, Miner & Smith.	10
39 Wellman, Miner & Smith.	10
63 Northrup & Co, No 9.	10
63 McCalmont.	10
63 Columbia Oil Co.	5
Wells	34
Production	253
Dry	

Clarksville.

Lot 17 Wm Cranston.	10
17 George Downing.	10
Wells	2
Production	20

Genesee.

Lot 6 Bradley Bros.	8
7 S H Merriman.	10
7 S H Merriman.	10
7 McCalmont Oil Co.	10
8 I Willets.	15
8 I Willets.	15
14 Chauncey Oil Co, No 5.	75
14 Durkee & Co.	10
15 McCalmont Oil Co, No 3.	30
15 Malarkey Bros.	15
23 Dean Oil Co, No 4.	40
23 Coss Oil Co.	5
24 Lee & Apple.	2
30 Duor & Roach.	10
31 H L McMullen & Co, No 18.	12
31 H L McMullen & Co, No 19.	12
Wells	16
Production	280

Warren and Forest.

Tract.	Owner.	Barrels.
Jackson Run, Morck & Co.		dry
Clark, Steelesmith & Co.		2
Cobham, Wesley Chambers.		dry
Davis, Davis & Co.		10
Guffey & Co, est.		5
Sweeten, Joe Magee.		8
Irvineton, Titus Farm, Hallock & Johnson dry		
Wells		7
Production		25
Dry		3

Clarendon.

Lot 58, Union Oil Co.	dry
55, W Beatty.	5
106, Lapham & Co, No 10.	6
107, Unknown.	5
464, J Smith & Son, No 4.	8
465, W Benedict, No 5.	7
527, Tannery Oil Co.	5
527, Book & Rhodes.	6
528, C A & D Cornen, No 8.	4

Tract.	Owner.	Barrels.
530, Whitehill & Co		8
530, H B Porter		8
557, Story & Adams		4
557, Mallory & Porterfield		6
557, J M Guffy		5
Wells		14
Production		77
Dry		1

Tiona.

Lot 159, Clark & Foster, No 10	10
160, R Thayer, No 3	4
160, R Thayer, No 4	6
160, Helm & Co	5
165, Hill & Co	6
166, Fertig & Henne	8
166, Fertig & Henne	5
200, Forgie & Co	4
200, W Ballard	10
205, Hallock & Johnson	5
205, Story & Adams	5
Wells	11
Production	68

Cooper.

Lot 3198 M W S & Co & U O Co No 17	25
3198, M W S & Co & U O Co No 18	97
3198, M W S & Co & U O Co No 19	50
3198, M W S & Co & U O Co No 20	195
torpedoed	17
Henry Lands, Syndicate, No 6	175
Henry Lands, McCalmont Oil Co No 5	2
Henry Lands, McCalmont Oil Co, No 8	20
Henry Lands, McCalmont Oil Co, No 10	6
2735, McCalmont Oil Co, No 7	77
Cooper, Anchor Oil Co	100
Cooper, Div 2, Clark & Foster, No 6	10
Cooper, Div 1, Clark & Foster, No 1	dry
J A Tract, Stewart & Co, No 2	dry
Williamson, J L McKinney & Co, No 5	dry
3198, Haight & Agnew,	dry
Wells	15
Production	774
Dry	3

Balltown.

5236, Grandin, Kelley & Co, No 10	100
5236, Grandin, Kelley & Co, No 11	400
5236, James Welch & Co, No 3	10
4821, Dutch Oil Co, No 3	6
4821, Balltown Oil Co, No 9	44
4821, Balltown Oil Co, No 10	316
4792, Balltown Oil Co, No 6	136
3133, Gailey & Murphy, No 2	60
3194, Porcupine Oil Co, No 9	310
3195, J A Gartlan, No 1	5

Miscellaneous.

Forest Co, Lot 5210, Groves & Co	dry
Tubbs Run (near Tionesta) H P Whitney, dry	
Wells	12
Production	1387
Dry	2

Lower Country.*Venango.*

Finchbaugh, Dale Bros	20
McClure, Fisher Bros	5
Long, Fisher Bros	3
McClure, Koch Bros	dry
Goodrich, Warfield, (wild-cat)	dry
Tract 65, Hulings & Wiley	dry
Sawyer, Wolf & Kugler	dry
McBride, O D Harrington	5
Miller, Sam Smith	5
Wiltz, Samuel Williams	5
William Loot's (acre) William Loots	dry
Fish, Warner	10
Gormley, R Richardson & Co	8
Plum Township (Grove Farm) Grove Farm	
Oil Co	dry
Wells	14
Production	61
Dry	6

Clarion County.

Moyer, B Moyer	5
Luce, Hahn & Co	4
Fillman, J Fillman	5
Updegraff, Jeannerett & Co	dry
Lauberton, Booth & Co	dry
Wells	5
Production	14
Dry	2

Butler & Armstrong.

Smith, Baldrige Oil Co	30
Reiber, Baldrige Oil Co	15
Reiber, Baldrige Oil Co	15
Smith, Miller, Yeakel & Co	12
Kaltenback, Forest Oil Co	2
Dorsey Heirs, E J Agnew, Agt	50
Brady Bend Iron Co, Hunter & Cummings	
est	5
Durkin, Hartman & Showalter Bros	4

Tract.	Owner.	Barrels.
Sugar Creek Township, J H Coe & Co		dry
Kirche, Wing & Co		7
Black, Parker & Co		4
Branch Creek Oil Property, S D Bell		6

Byrom Centre.

Weller, Goodrich & Weaver	3
McGinnis, Patroff & Bros	dry
Wells	12
Production	146
Dry	2

DRILLING WELLS, RIGS UP AND BUILDING.**Bradford Field.***East and West Branches.*

Farm.	Operator.	Depth.
Bingham, G H Van Vleck, No 21		800
Bingham, G H Van Vleck, No 22		500
Bingham, G H Van Vleck, No 23		100
Bingham, Lot 86, R J Straight, No 3		sand
Bingham, Lot 168, R J Straight		rig bldg
Bingham, Forest Oil Co, No 9		sand
Bingham, Forest Oil Co, No 10		rig
Bingham, Bayne, Fuller & Melvin, No 56		300
Fox, Barnsdall & Shafner		rig bldg
Fox, Barnsdall & Shafner		1300
Fox, Barnsdall & Kearns, No 2		rig
Fox, Stetthimer & Co		rig bldg
Dent, P C L Co, No 46		1475
Dent, P C L & P Co, No 47		800
Dent, P C L & P Co, No 48		100
Dent, P C L & P Co, No 49		rig
Dent, P C L & P Co, No 50		rig bldg
Dent, Whitney & Wheeler, No 30		rig
Dent, Whitney & Wheeler, No 31		rig bldg
Taylor, Atlas Oil Co, No 4		rig bldg
Minard Run Tract, Owners M R Tract No 100		1600
Minard Run Tract, Owners M R Tract No 101		500
Minard Run Tract, Lot 66, Mc Kean Oil Co		1300
Tibbetts, Emery Oil Co, No 14		600
Pike, Capt J T Jones, No 8		drilling
Hawkins, P C L & P Co, & P T Kennedy		drilling
Hawkins, P C L & P Co, & P T Kennedy		rig
Hawkins, Union Oil Co, No 12		rig bldg
Freeman, Chapin & Co, No 9		rig
Freeman, Leopold		rig bldg
Drake Estate, P M Fuller		300
Smith, P T Kennedy		rig
Lewis Run, Whitney & Wheeler		800
Beckwith, Beardsley		rig
Craft, Roy & Archer (old)		2 rigs
Craft, Roy & Archer		rig
Nile, Bradford Oil Co (old)		rig
Reed, Bradford Oil Co (old)		2 rigs
Blair, John J Carter No 22		800
Blair, John J Carter, No 23		rig

Quintuple.

Lot 25, E Strong & Co, No 2	rig
43, Tarbell & Morris	850
44, J W Humphrey (old)	rig
50, B F Brinton (old)	rig
147, Hamsher & Co	rig
175, Atwater & Co (old)	rig
187, Jennings & Co	350
188 Jennings & Cummings	rig bldg
215, Kane City Oil Co	650
260, E T Howes (old)	rig
273, Richards & Co	rig
277, Baker & McClure	sand
Rigs	31
Drilling	23
Total	54

Kendall Creek.

Buchanan, P. O. Buchanan (fishing)	200
Richardson, Munhall & Smithman	800
Youngs, P T & W C Kennedy	1200
Berger, P T & W C Kennedy	rig bldg
Clark, J D Clark	drilling
Moore, Ege Oil Co, No 10	rig
Buchanan, McCray Bros & Co	rig bldg
E T Co, Forest Oil Co, No 28	500
E T Co, Chapin & Co, No 11	rig
Turner, Jayne & Co	rig
Sill, McCray Bros	500
Sill, McCray Bros	rig
Sill, Howe & Co	300
Rigs	6
Drilling	7
Total	13

Foster Brook.

E T Co, H R Blackmarr, No 5	600
E T Co, H R Blackmarr, No 6	rig
E T Co, H R Blackmarr, No 7	rig bldg

Farm.	Operator.	Depth.
E T Co, Enterprise Transit Co, No 75		rig
E T Co, Enterprise Transit Co, No 76		rig bldg
E T Co, F W Mitchell, No 7		rig
Willets, I Willets, No 25		700
Willets, I Willets, No 26		rig
Willets, Young & Willets		200
Angell Oil Co, Josett Bros, No 4		200
Angell Oil Co, Jas Smith		rig
Angell Oil Co, Vandergrift & Miller		rig
Angell Oil Co, Treat & Porterfield		rig
Bradley, Hazelwood Oil Co, No 52		drilling
Bradley, Hazelwood Oil Co, No 53		drilling
C B & H, Smith & Foley		rig bldg
C B & H, Vandergrift & Miller		rig
C B & H, Watson Oil Co, No 23		1000
C B & H, Watson Oil Co, No 24		rig bldg
C B & H, Crippen & Kittenger		rig
B R & Co Pur, Baum, Richardson & Co, No 17		300
Rigs		13
Drilling		8
Total		21

Four Mile.

Van Campen, Geo Van Campen	500
Van Campen, Geo Van Campen, old	rig
Van Campen, Merrill & Perrin	drilling
Van Campen, Jones & Nelson	rig
Van Campen, William Doe	rig bldg
Johnson, Bussell & Co, No 5	rig
Firkler, Franchot Bros, No 3	100
Firkler, Franchot Bros, No 4	rig bldg
R Moultrous, John Coast	700
R Moultrous, John Coast	rig
R Moultrous, John Coast	rig bldg
Stevens, Hughes	rig
Johnson, Gaskell	rig
Widow Carroll, Steve Collins	rig
Lippert, Griffin	600
Waters, G N Moore	400
Waters, Carroll Bros	100
Sparger, Wyant & Co	rig bldg
Davis, Weiser & Durkee	200
Widow Carroll, Griswold & Co	drilling
Widow Carroll, Steve Collins (old)	rig
Rigs	12
Drilling	9
Total	21

Indian Creek.

Wigwam, Bligh	drilling
Lampblack Factory, White & Lavens drilling	
Pine Lot, Reid & Brown,	rig bldg
Pine Lot, R G Baily, No 5	700
Pine Lot, R G Baily, No 6	200
Pine Lot, R G Baily, No 7	rig bldg
North Branch, J D Downing, No 31	1100
North Branch, J D Downing, No 32	rig
North Branch, J D Downing, No 33	rig
North Branch, J D Downing, No 34	rig
North Branch, J D Downing, No 35	rig bldg
Shattuck, Emery Oil Co, No 5	350
Campbell, R G Baily, No 10	100
Meek's Creek (W & M lands) J L McKimney & Co, No 2	1200
Meek's Creek (W & M lands) J L McKimney & Co, No 3	rig bldg
Meek's Creek (W & M lands) Gailey Bros, No 48	400
Meek's Creek (W & M lands) Gailey Bros, No 49	100
Loup, Hazelwood Oil Co, No 36	700
Loup, Hazelwood Oil Co, No 37	300
Loup, Hazelwood Oil Co, No 38	rig
Loup, Hazelwood Oil Co, No 39	rig
Loup, Hazelwood Oil Co, No 40	rig bldg
Dodge, Shear Bros	rig
Barse, U O Co (G V Forman Agt)	rig
Barse, Stover & Dilks, No 9	100
Campbell, Forest Oil Co, No 5	rig
Cooper, Forest Oil Co, No 2	rig
Cooper, Forest Oil Co, No 3	800
Simms, Bradford Oil Co, No 26	800
Simms, Bradford Oil Co, No 29	800
Simms, Bradford Oil Co, No 30	rig
Simms, Bradford Oil Co, No 40	rig
Simms, Bradford Oil Co, No 42	rig
Rigs	17
Drilling	16
Total	33

Cole Creek.

Bingham, Forest Oil Co, No 25	700
Bingham, Forest Oil Co, No 26	rig
Rew, Capt E Frawley (old)	rig
Bingham, 494, Union Oil Co & Forman No 8	50
Bingham, 530, Union Oil Co, No 17	drilling
Bingham, 530, Union Oil Co, No 18	rig bldg
Bingham, 477, McKean Oil Co, No 1	1250
Bingham, 477, McKean Oil Co, No 2	rig
Rigs	4
Drilling	4
Total	8

Kinzua.

Farm.	Operator.	Depth.
3077, Union Oil Co, No 45		1800
3077, Union Oil Co, No 46		rig
3077, Union Oil Co, No 47		rig bldg
3077, Union Oil Co, No 48		rig bldg
Bingham, Cornwall, Parker & Hasson		500
LaFayette, R J Straight		sand
Sullivan, Thos Tait		700
Sugar Run, Chapin & Co		70

Kinzua Village.

Dew Drop, Mumford & McElrea	rig bldg
Andrew, Eaton & Bundy (old)	rig
Archibald, Brown & Co	drilling
Falconer, J H Markham	sand
Falconer, J H Markham	rig
Campbell, Porter & Conley	400
Campbell, Porter & Conley	rig
Campbell, Porter & Conley	rig bldg
Campbell, Bradford Oil Co	500
Hoffman, Beardsley & Co (old)	rig
Rigs	9
Drilling	9
Total	18
Old rigs Bradford field	14

Allegheny Field.*Scio.*

Owner.	Depth.
Lot 1 Manhattan Oil Co	200
1 Manhattan Oil Co	rig bldg
1 Lovell & Day, No 6	450
1 Lovell & Day, No 7	300
1 Lovell & Rumsey, No 3	700
1 Lovell & Rumsey, No 4	250
1 Lovell & Rumsey, No 5	rig
1 Lovell & Rumsey, No 6	rig
1 Lovell & Rumsey, No 7	100
1 Lovell & Rumsey, No 8	100
1 Lattimer & Phillips, No 3	100
1 Waco Oil Co, No 2	800
1 Waco Oil Co, No 3	300
1 Lee & Apple, No 2	rig bldg
1 Lee & Apple, No 3	rig bldg
2 Stewart & McDonell	rig bldg
2 John O Shea	rig bldg
2 Shirley & Hostetter, No 14	1200
2 Shirley & Hostetter, No 15	rig bldg
2 Shirley & Hostetter, Allen farm No 1	sand
2 Shirley & Hostetter, Allen farm No 2	900
2 Shirley & Hostetter, Allen farm No 3	rig
2 Shirley & Hostetter, Allen farm No 4	rig
2 Young & Co, No 17	600
2 Young & Co, No 18	100
2 Young & Co, No 19	rig
2 Young & Co, No 20	rig bldg
2 Coast & Co, No 17	750
2 Coast & Co, No 19	100
2 Coast & Co, No 22	drilling
2 Coast & Co, No 23	drilling
2 Coast & Co, No 24	rig
2 Coast & Co, No 25	rig
2 Coast & Co, No 26	rig bldg
2 Long Time Oil Co, No 2	600
2 Ackerly & Barton, No 5	800
2 Masters & Co, No 1	700
2 Nameless Oil Co, No 1	750
2 Frank Campbell, No 1	rig bldg
2 Farrell & Snyder, No 3	800
2 Farrell & Snyder, No 4	sand
2 Farrell & Snyder, No 5	750
2 Farrell & Snyder, No 6	rig bldg
2 Riley Allen	rig
2 Schonblom & Ann	100
4 D C Bronson, No 1	300
4 Reed & Co, No 1	600
4 Barton & Taylor	500
4 Barton & Taylor	rig bldg
4 W L Hardison	200
4 W L Hardison	200
11 Greenlee & Anderson	rig
11 Greenlee & Anderson	260
11 R Carroll (Robinson) No 2	400
11 R Carroll (Robinson) No 1	300
11 Carroll & Thompson	rig bldg
47 The Union Oil Co & Co	drilling
Rigs	21
Drilling	36
Total	57

Alma.

Lot 2 Church & Whitcomb	100
2 Hazelwood Oil Co, No 22	600
2 Hazelwood Oil Co, No 23	drilling
2 Hazelwood Oil Co, No 24	drilling
2 Hazelwood Oil Co, No 25	drilling
3 Ellsworth & McMullen No 1	550
4 O P Taylor, No 1	100
4 O P Taylor, No 2	rig bldg
4 Matson & Thompson, No 4	rig bldg
4 Matson & Thompson, No 5	400

Farm.	Operator.	Depth.
4 Matson & Thompson		rig
4 Matson & Thompson. (old)		rig
4 Richardson & Co, No 3		875
4 Fertig Bros, No 2		150
4 Fertig Bros, No 3		rig
4 Whitnall & Lord		200
4 Crane & Odell		rig bldg
4 Thos McElroe		rig
17 Carlin Bros & Co, No 3		rig
17 Carlin Bros & Co, No 4		600
17 Carlin & Bussell		500
17 Carlin & Bussell		rig
17 Thornton		rig
17 Col Scott		1000
17 Bronson & Co		700
17 Manning & Co		rig
18 Patty & Alshouse, No 5		1000
18 Patty & Alshouse, No 6		rig
18 Patty & Alshouse, No 7		rig bldg
18 Manhattan Oil Co		1000
18 Manhattan Oil Co		2 rigs
20 Shirley & Hostetter, No 1		sand
20 Shirley & Hostetter, No 2		700
20 Shirley & Hostetter, No 3		rig bldg
20 I Willets, No 12		950
20 I Willets, No 11		100
20 Willets & Duke, No 1		400
20 Willets & Duke, No 2		250
20 Willets & Duke, No 3		rig
20 Riter & Conley, No 1		rig bldg
21 Bennet & Co		800
21 Finnigan		500
21 Finnigan		rig
21 Cochran Bros No 4		1150
21 Cochran Bros, No 5		800
21 Cochran Bros, No 6		rig
21 Cochran Bros, No 8		rig bldg
21 Cochran Bros, No 9		450
24 W F Jones, No 4		100
24 W F Jones, No 5		rig
24 Flannigan & Cheeseman		rig
24 Flannigan & Cheeseman		rig
34 Ackerly & Barton, No 1		300
24 Vance & Co		500
24 Vance & Co		200
38 Ackerly, Barton & Smith, No 1		300
38 Ackerly, Barton & Smith, No 2		rig
38 Taylor, Ackerly & Barton,		rig bldg
39 Duke & Norton Oil Co, No 38		1100
40 Duke & Norton Oil Co, No 40		300
40 Portland Oil Co, No 4		rig
40 Portland Oil Co		rig bldg
66 Torrey & Co		drilling
66 Dunham & Co		drilling
66 H C Crawford		drilling
73 Willets		rig
109 O'Conner Bros & Co		400
123 Wm Steele		drilling
123 Reddy		rig bldg
138 Empire Gas Co		rig
132 Canfield & Co		600
New rigs		30
Old rigs		1
Drilling		41
Total		72

Wint.

Dunn farm, Shirley & Hostetter No 1	100
Lot 34 Smith & King (old)	rig
34 Wellman, Miner & Fuller, No 12	1100
34 Wellman, Miner & Fuller, No 13	rig bldg
41 Riley Allen & Co (old)	rig
New rigs	1
Old rigs	2
Drilling	2
Total	5

Bolivar.

Lot 6 Pentzer Oil Co, No 4	800
6 Pentzer Oil Co, No 5	200
6 Pentzer Oil Co	2 rigs
6 Summit Oil Co	900
6 Stewart & McDonell	rig
6 Manhattan Oil Co	rig bldg
6 Star Oil Co	600
6 Star Oil Co	rig bldg
6 Mulkin	rig
7 J D Downing	rig
7 Applebee & Co	300
7 Applebee & Co	450
7 Applebee & Co	2 rigs
7 Reed & Laing	900
7 W & J Duke, No 6	1000
7 W & J Duke, No 7	300
7 W & J Duke, No 8	500
7 W & J Duke, No 9	200
7 W & J Duke	200
7 W & J Duke	rig
7 Coast & Lego	400
7 Coast & Lego	rig bldg
7 Dow & Grace	rig
8 Short Oil Co	950
8 Hazelwood Oil Co, No 6	drilling
8 Hazelwood Oil Co, No 7	rig
8 Hopkins & Co	300
8 Hopkins & Co	200
8 Hopkins & Co	rig bldg
14 Empire Gas Co	rig

Tract.	Operator.	Depth.
14 Chas Williams		rig bldg
14 Jeff Boggs		rig
15 A L Robinson		600
16 Warren, Gleason & Matson		drilling
18 Durkee & Weiser Bros, No 1		1000
23 Empire Gas Co		rig
24 Koch Bros		300
24 H M Ernst		sand
24 H M Ernst		rig
30 Robt Garthwait & Co		drilling
30 Hogan & Basch		drilling
31 D E Fritts		200
31 D E Fritts		2 rigs
31 Odell & Crane		drilling
31 J H Hydrick		rig
31 Smith, Miner & Wellman		rig
31 Fisher Oil Co		100
31 Fisher Oil Co		rig
31 Fisher Oil Co		rig bldg
31 Riley Allen		300
31 Conroy & Johnson		200
31 Stewart & McDonell		1000
31 Fritts, Lowry & Wilson		200
Carlin, Bussell & Urquhart		150
32 Hazelwood Oil Co		drilling
35 Pliny Parker		2 rigs
38 Hanley & Oshea, No 13		rig
38 Hanley & Oshea, No 14		rig
63 H F Northrup & Co		drilling
63 Columbia Oil Co		600
63 Columbia Oil Co		rig
63 Columbia Oil Co		rig
Rigs		31
Drilling		35
Total		66

Clarksville.

Lot 9 Huston & Brecht	rig
9 Clark & Davis	600
9 Mulken, (old)	rig
9 P T Kennedy No 2	sand
9 P T Kennedy, No 3	600
9 P T Kennedy, No 1	rig
9 P T Kennedy, No 6	rig bldg
10 E W Whipple	750
17 McManns, No 5	1000
17 McManus, No 6	rig bldg
17 J C Smith & Son	400
17 Cuba Oil Co, No 10	drilling
17 Henry Werthman	rig bldg
32 Wellman, Smith & Sawyer	100
35 Wellman, Smith & Sawyer	rig
New rigs	6
Old rigs	1
Drilling	8
Total	15

Genesee.

Lot 6 Bradley Bros (old)	rig
6 Dow & Vincent	rig
7 S H Merriman	350
7 S H Merriman	rig bldg
7 Ackerly & Barton (old)	rig
8 I Willets	2 rigs
14 J B Bradley	rig
14 Empire Gas Co	1000
14 Empire Gas Co	200
14 Empire Gas Co	rig
14 Durkee & Co	rig
14 Chauncey Oil Co, No 12	200
14 Chauncey Oil Co, No 19	200
14 Chauncey Oil Co, No 30	200
14 Chauncey Oil Co	rig bldg
14 Perrin & Co	drilling
15 McCalmont Oil Co	200
15 McCalmont Oil Co	400
15 McCalmont Oil Co	600
15 McCalmont Oil Co	2 rigs
15 Malarkey Bros	100
15 A T Palmer	sand
15 A T Palmer (old)	rig
15 Mason Bros	500
22 Smith & Hill	800
22 Willets Bros	1000
22 Willets Bros	2 rigs
23 Dean Oil Co	400
23 Dean Oil Co	rig
23 Dean Oil Co	rig bldg
23 Coss Oil Co	600
23 Coss Oil Co (old)	rig
29 Wm Cranston (old)	rig
30 McCalmont Oil Co	sand
30 McCalmont Oil Co	rig
30 Rosana Wales	300
30 Davis	rig bldg
30 Duor & Roach	200
31 H L McMullen, No 20	drilling
31 H L McMullen, No 21 (old)	rig
31 H L McMullen, No 22 (old)	rig
31 H L McMullen, No 23	rig
31 H L McMullen, No 24	rig bldg
New rigs	20
Old rigs	7
Drilling	22
Total	49

Warren and Forest.			Lower Country.		
Glade and other Towns.			Venango.		
Farm.	Operator.	Depth.	Farm.	Operator.	Depth.
Rankin, McWilliams & Co.		500	Finchbaugh, Dale Bros.		100
Knapp, Smith & the Union Oil Co.		800	Finchbaugh, Cratty & Sons.		1000
Hemlock Run, W Reed		250	Hall, Crawford & Coleman		300
Clark, Steelesmith		200	McBride, Wesley Chambers		400
Blystone, Blystone		200	Roach, Roess Bros.		300
Leonhart, Beattie		250	C F Finchbaugh, Wesley Chambers		100
Scotfield, Grace & Daniels, No 4		150	Hazlett, L Milton		1000
Woad, Johnson & Co.	drilling		Brandon, Wolf & Kugler		500
Watson, Dr Hunter & Co.	drilling		Emlenton (Church lot), Unknown		900
Deerfield, Munhall & Smithman	drilling		Morrison, Fisher Bros		rig
Wardwell, C W Verbeck	rig		Muier, Fisher Bros		rig
Wardwell, K H McBride	rig		Lake, Redfield		rig
Wardwell, Rhodes & Co.	drilling		Fish, Warner		rig
Wardwell, Pratt & Co.	rig		Haggerty, W Haggerty		rig
5537, S S Fertig	rig		Reinbold, Dale & Co.		rig
5537, Hoffman	rig		Rigs up and building	6	
Sutter, P M Smith	rig		Wells drilling	9	
Mistral, Steelesmith & Co.	drilling		Total	15	
Miscellaneous.			Clarion.		
Sheffield, 313, Vandergrift, Murphy & Co.	rig		Moyer, Smith & Moyer		200
Sheffield, 398 Gailey & Co.	500		Foust, Foust Bros.		400
Forest County, 5214, Mallory & Co.	rig		Baker, Irwin		400
Forest County, 5134, Falconer	rig		Baker, Johnson		200
McMullen Lease, J L McKinney & Co.	drilling		Sherry, Wesley Chambers		100
Rigs	9		Berlin, Harley		700
Drilling	14		Alt, Alt Bros		100
Total	23		Moyer, Smith & Ferris		rig
Clarendon.			Sherry, Wesley Chambers		rig
Lot 35, Ackerly & Co, No 3	200		Rigs up and building	2	
53, Union Oil Co, No 13	rig		Wells drilling	7	
55, W Beatty	rig		Total	9	
79, Adams & Story	500		Butler and Armstrong.		
80, Adams, O'Donnell & Co.	100		Dorsey Heirs, Phillips Bros, Agnew		
106, Lapham & Co, No 11	50		Agt	1500	
162, J T Beatty	rig		Wallace, Phillips Bros, Agnew	Agt	1000
463, Schemmerhorn & Co.	100		Webber, P Schmick		200
464, John Smith & Son No 5	800		Wallace, Sheidemantle		sand
464, J Smith & Son, No 6	rig		Hoffman, Hartman & Showalter Bros.		1000
465, W Benedict, No 6	100		Morrow, Westermann & Co.		300
465, W Benedict, No 7	200		Vosbrink (near St. Jo.), Showalter Bros		
465, South Shore Oil Co, No 9	300		& Hartmann, 3		sand
467, Wade & Co.	100		Vosbrink (near St. Jo.), Showalter Bros		
494, Chas Vrooman	rig		& Hartman, 4		sand
498, Ed McDermott	400		Burnes, D Baum		drilling
497, Nutting, et al.	300		Duffey, Hoyt & Dennison		50
498, Pratt & Co, No 7	rig		O'Donnell, O'Donnell		50
498, Pratt & Co, No 8	rig		Friel, Babbitt		100
498, Mooney & Griffin	400		Wallace, A Sheidemantle		rig
527, Tannery Oil Co.	800		Wallace, A Sheidemantle (old)		rig
527, Book & Rhodes, No 2	100		Renfrew, Forest Oil Co & Jennings		rig
528, C A & D Cornen, No 9	600		Husselton, Bald Ridge Oil Co		rig
556, C A & D Cornen, No 3	1300		Husselton, Bald Ridge Oil Co		rig bldg
531, C A & D Cornen, No 1	100		Steele, J O Weidger		rig
529, Connors & Ottman	300		Seybert, Timberlin & Co.		rig
526, Story & Adams	800		Milligan, Showalter Bros & Hartmann		rig
530, Whitehill & Co No 2	rig		Hyland, Unknown		rig
530, Goal & Co.	100		Heydrick Farm (near Grease City), Un-		
559, Story & Adams	200		known		rig
357, A McDonald	300		Pontins, Hunter & Cummings		200
Rigs	8		Jackson, Col Jackson & Co.		drilling
Drilling	23		Byrom Center.		
Total	31		McGivis, J P Crawford Co		900
Tiona.			Calvert, J S Young		400
Lot 109, Short & Co	sand		Davis (near Foxburg), Hays & Short		500
109, Kervin & Co, No 4	rig		Rigs	10	
160, J S Patterson, No 1	500		Drilling	17	
160, J S Patterson, No 2	200		Total	27	
159, Clark & Foster, No 10	500		Cooper District.		
159, Clark & Foster, No 11	rig		Tract.	Owner.	Depth.
160, R Thayer, No 5	sand		Herrick, Union Oil Co, No 9		1200
			Herrick, Union Oil Co, No 10		900
			E T Co, (south Cooper) Fertig & Henne		
			No 3		rig
			E T Co, (east Cooper) Fertig & Henne		
			No 4		rig
			Cooper District, Anchor Oil Co, No 8		rig
			(old)		rig
			Cooper District, Anchor Oil Co, No 10		rig
			(old)		rig
			Cooper District, Anchor Oil Co, No 30		rig
			(old)		rig
			Henry Lands, Lot 1 Anchor Oil Co No		300
			31		rig
			Henry Lands, Lot 1, Anchor Oil Co, No		1200
			32		600
			Henry Lands, Syndicate, No 7		rig
			Henry Lands, Syndicate, No 8		1100
			Henry Lands, Syndicate, No 9		800
			Henry Lands, McCalmont Oil Co, No 4		100
			Henry Lands, McCalmont Oil Co, No 7		rig
			Henry Lands, McCalmont Oil Co, No 9		900
			Henry Lands, McCalmont Oil Co, No 11		400
			3193, M W S & Co & U O Co, No 21		1600
			3193, M W S & Co & U O Co, No 22		rig
			Cooper, M W S & Co & U O Co No 23		rig bldg
			3198, Clark, Foster & Murphy, No 3		rig
			3198, Clark, Foster & Murphy, No 4		rig
			3168, Wray (old)		rig
			Fox, Fox & Co (old)		rig
			Rigs	12	
			Drilling	12	
			Total	24	
Balltown.			Balltown.		
			5236, May, Kelley & Grandin, No 13		1400
			fishing		1150
			5236, May, Kelley & Grandin, No 14		50
			5236, May, Kelley & Grandin, No 15		rig
			5236, May, Kelley & Grandin, No 16		1200
			5236, James Welch & Co, No 4		rig bldg
			5236, James Welch & Co, No 5		400
			3133, Gailey & Murphy, No 3		rig
			4821, Balltown Oil Co, No 8		1500
			4821, Balltown Oil Co, No 11		75
			4821, Balltown Oil Co, No 12		sand
			4821, Balltown Oil Co, No 13		1202
			4792, Balltown Oil Co, No 5, fishing		800
			4792, Balltown Oil Co, No 7		rig
			4792, Balltown Oil Co, No 8		375
			4792, Balltown Oil Co, No 10		rig
			4792, Balltown Oil Co, No 11		rig bldg
			4792, Balltown Oil Co, No 13		650
			3194, Porcupine Oil Co, No 5		700
			3194, Porcupine Oil Co, No 10		200
			3194, Porcupine Oil Co, No 11		rig
			3194, Porcupine Oil Co, No 12		100
			718, Briody & Barnsdall, No 1		75
			731, Vandergrift, Miller & Murphy		rig
			3195, Gailey & Guffey (old)		8
			Rigs	16	
			Drilling	—	
			Total	24	

A MEETING of the Petroleum Association of Great Britain was held in London in August, to combat the "Petroleum Storage Bill," then before Parliament. The bill was thrown out subsequently by the House of Lords and when it comes up next session, will doubtless be greatly modified. The Petroleum Association was established in 1866 to provide for the proper conduct of the petroleum trade, and includes in its membership shipowners, wharfingers, merchants, and wholesale and retail dealers in petroleum, in the principle cities of Great Britain. At the meeting referred to, many interesting facts were

stated, among others, that there are 40,000 persons connected with the trade, and perhaps 10,000,000 consumers. From the wharves in London, in winter, no less than 100,000 gallons of illuminating oil is delivered daily. One firm in Bristol last year, supplied 3,190,000 gallons to 6,000 consumers. Oil which flashes at less than 73° Fahr., is excluded from sale. In addition to its use as a light-giving agent, mineral oil is also largely employed for heating and cooking purposes.

For the seven months ending with July, England imported 38,682,193 gallons of petroleum, valued at 1,179,224 pounds sterling, or nearly \$5,896,120.

THE MACKSBURG FIELD.

The following summary of operations in Ohio, is from our Macksburg correspondent, under date of September 19th :

Roice & Brundred's No. 1 is flowing by heads with hourly intervals, at the rate of 10 to 12 barrels a day. The firm have a rig up for No. 2.

Keeler & Co.'s No. 2 is shut down at the bottom of the salt sand while being cased. This firm have a rig building on the Snyder farm. George Rice is drilling at 150 feet.

Stevens & Co. are shut down on the top of the sand. Hulings has a fishing job at his drilling well, and is building a rig on the Smith farm.

Bradley & Co. have a rig building on the Hall farm. Mills & Mullen have a rig up on the Clark farm. Decker & Sons are building a rig for No. 3 on the Atkinson farm.

McManus is building two rigs on the Ruff farm.

Stevens Bros. have a rig up on Goose Run.

STOCKS AT WELLS.

Reports were received from 5,785 Bradford wells for September 1st. Of this number a comparison could be made between 5611 for August 1st, and 5639 for September 1st. The results of this comparison are set forth as follows :

Time.	No. Wells.	Total Stocks.	Average Stocks,
August 1st	5,611	383,376	68.32
September 1st	5,639	356,302	63.18
Difference	28	27,074	5.14

With 12,530 wells in the Bradford field on the 1st of September, and allowing that the decline in stocks of 5.14 barrels per well holds good for the entire field, the total decrease in stocks amounts to 64,404 barrels, an average daily decline of 2,078 barrels. That is if the decline of 5.14 barrels per well was uniform throughout the Bradford district, the runs drew upon the stocks at the rate of 2,078 barrels per diem.

The runs of both pipe lines in the Bradford field were about 37,165 barrels per day during the month of August. Subtracting the decrease in stocks from the runs will make Bradford's production for August 35,087 barrels per diem. These figures would denote an increase in the Bradford production over the preceding month of 657 barrels. With the completion of 98 new

wells during the month, the generous use of cheap glycerine, and the prevailing favorable weather, it can be safely asserted that the production of the Bradford field has been fairly maintained, and, under the circumstances noted above, the result shown by this month's figures cannot be very wide of the mark.

THE BRADFORD FIELD.

Estimated daily production for August	35,087	barrels
do do do do July	34,530	do
do do do do June	35,279	do

The above estimates have been furnished from carefully compiled reports of stocks at wells for the months named, and, although absolute correctness cannot be claimed for them, they are sufficiently close to determine the fact that the daily production of the Bradford field for the months of June, July and August, has approximated 35,000 barrels.

THE ALLEGANY FIELD.

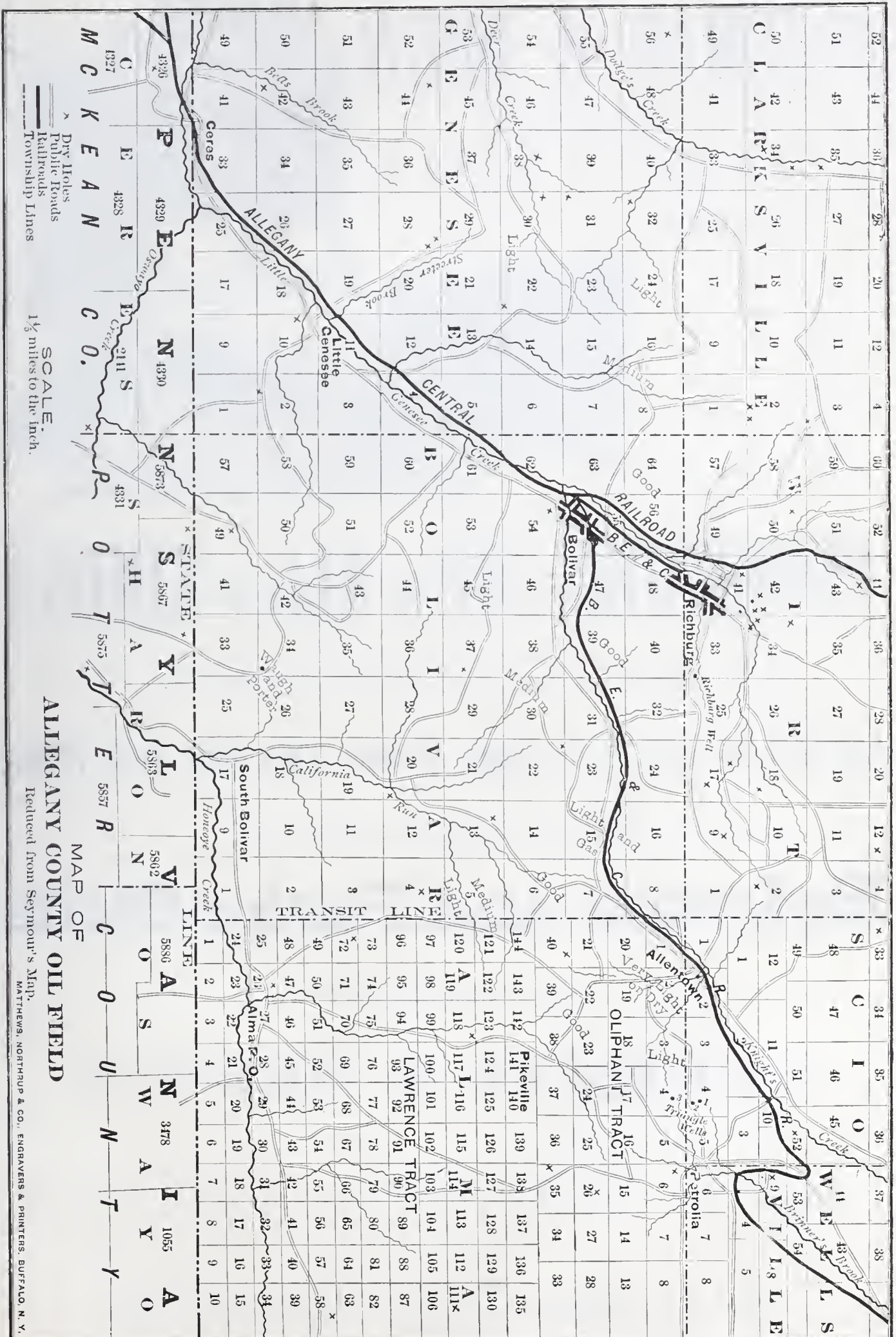
The number of Allegany wells from which reports were received for September 1st, was 576. With 2,815 wells connected with the lines on the 1st of September, this number is too small to admit of any general conclusions being drawn for this district. The results of these reports are tabulated as follows :

Time.	No. Wells.	Total Stocks.	Average.
August 1st	563	32,493	57.7
September 1st	576	31,394	54.5
Difference	13	1,099	3.2

The actual decline as shown by the official figures published in the oil region press, was 5.28 barrels per well, or a total decrease of stocks in this section of the region of 14,863 barrels. This denotes an average daily decrease in stocks at wells of 479 barrels. Subtracting this from the daily runs, 12,743, places the daily production at 12,264 barrels. The same authority made the daily production for July 12,345 barrels.

Allegany estimated daily production for August	12,264	barrels
do do do do do July	12,345	do
Decrease	81	

OUR exports to France have been steadily on the increase ever since the French government reduced its discriminating duty against American petroleum. The French freely admit the superiority of our product. The exports to that country for the first eight months of the present year, show an increase of 28,000 gallons of refined, and 5,500,000 gallons of crude, over the first eight months of the year preceeding.



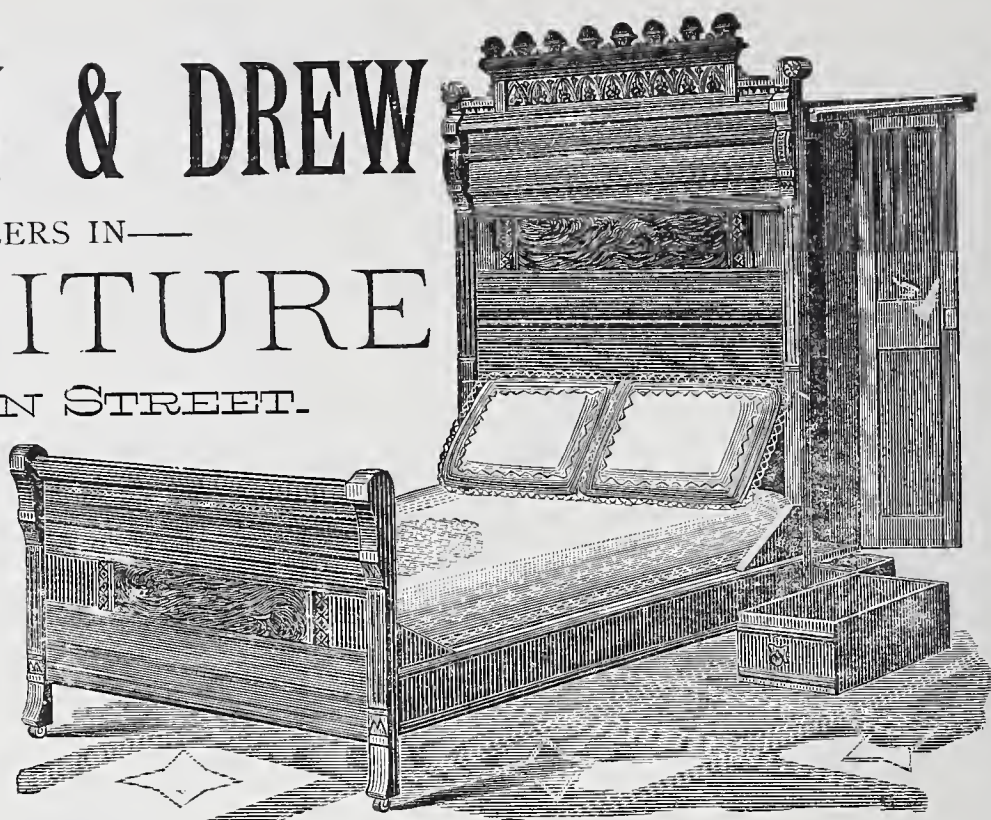
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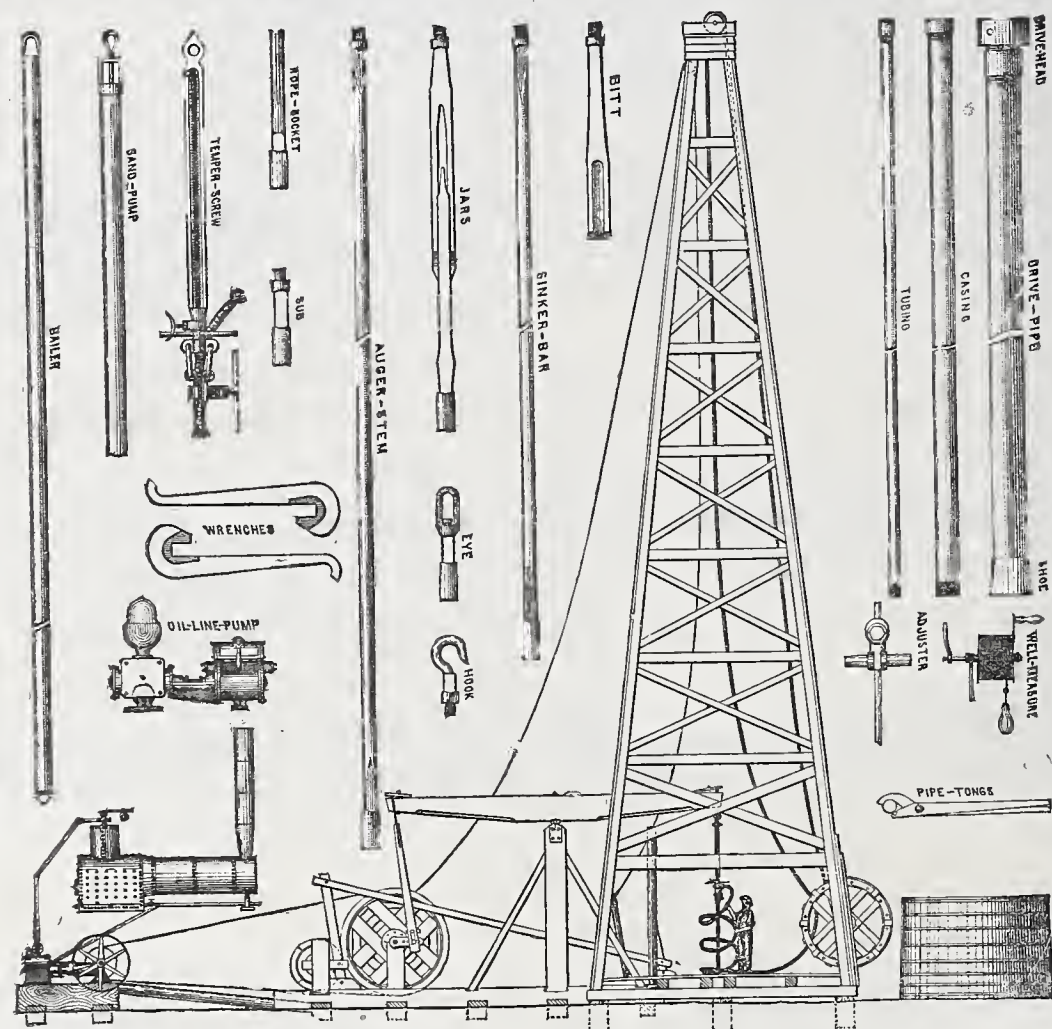
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THE PETROLEUM AGE.

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BRADFORD, PA., OCTOBER, 1883.

No. 9

THE RELATIONS OF BANKERS AND PRODUCERS.

BY C. F. ALLEN.

CHAPTER III.

IN the oil fields of Canada may be seen images of former days on Oil Creek and the Allegheny, faint indeed, and quiet as the reflections of Yosemite. Large pits, dug in the clay soil, hold the accumulated stocks of the trade, and here and there long, black, ten-barrel tanks, horizontal on trucks, like the great guns whose existing examples are to be seen only in the arsenals of Lisbon and Woolwich, stand threatening various points of the compass, or bear to the refiners their lading of odorous oil.

A storage company of Petrolia has the custody of the petroleum, and issues warehouse receipts for any amount delivered. These are about like the former securities of Pennsylvania, and are accepted by many banks as collateral. It is only after full appreciation of the disorder and struggles of earlier oil fields, and the utter lack of system, as witnessed in the development of such fields as Canada West, that we can fully estimate the transformation here. There were days and weeks to some, months to others, in Oil Creek times, when the wheels of Fortune glittered in rapid revolutions upon a seemingly endless course. Perhaps it was when the inflated currency of the country came sifting through the balloon bubbles of stock companies, when Culver's banks, like the members of an insatiable octopus, writhed their tentacles where no other amphibian could exist; where the gentleman now owning the largest production in the country was called "Dry Jones;" when Dave Mitchell, peace to his ashes, travelled through the woods around Titusville with a grip-sack full of currency; when all things were that are no longer; but the sunshine was as fickle as the storm, and both alternated until the producer became the creature of circumstance, and the prey of misfortune.

The finances of petroleum are past the chaos of evolution, and firmly based in every depart-

ment. This is largely due to the sound judgment and tenacity of the prominent bankers of Oil City and sister cities, and their names stand to-day as they have stood when they were the sole barriers against the tide of suspicion that rolled from the whole country towards the bewildered producer. There have been times when malicious rumors have attacked the credit of some particular bank, and when the reputation of the institution alone prevented the anticipated panic. There are few banks that have not been worried by the tongue of enmity, and, sometimes, of rivalry, and found the producer ready, in good faith, to back the interests of capitalists with his deposits.

When the muddy scouts woke the baby in many a cheerful home with the tidings of 646, and the production of 85,000 barrels per day seemed likely to be overflowed by the fountains of the great deep, when the always hoping producer heard, in the pauses of the walking beam, the story of Murphy's 5,000 barrel flowing well, July 3d, 1882, there was a time that called for deliberation and caution, but not for suspicion. The forbearance of all classes was mutual, and the fact that for five months the market remained ruinously low, and at one time the sanguine bears predicted a new daily production of 100,000 barrels, is the best and only crucial test of the stability and resources of those involved.

The press of the country at large estimated the decline in value during this period at \$50,000,000, and, although the actual loss was limited to shrinkage in the amounts received for the product, (no less than \$3,000,000) added to the losses in the lunatic rush to Cherry Grove, not to be estimated, because the individual experiences remain better untold, although the main burden of the shrinkage came upon the only corporation in the United States able to carry the load, the ordeal was one severer than ever tried the resources and credit of any branch of industry in our times, without producing widespread ruin and disaster. The secret of this lay in the proverbial honor of the trade, of which the *New York Globe* said in 1871:

"It is a noticeable fact that the spirit of the saying, 'his word is as good as his bond,' is as nearly lived up to in the oil regions as in any other section of this country."

When the P. & M. Bank failed in Titusville, the cashier of the correspondent bank in New York, remarked that it was the first of their bankrupt friends that had not tried to leave an overdraft.

The reputation of a community may sometimes be of more avail than its other resources, and the background of honorable endeavor a brighter relief than unmerited success.

The "busted" producer, as for the last time he pulls the tools at some utter failure of a well and turns from the 2,000 foot grave of fond imaginations, forgets that he bears but a portion of the disappointment and shocks of the trade. What the deserted derrick or whistling gas well may be to him, a scrap of paper, a telegram, a rumor, may be to the envied capitalist. They have stood well together, and where either has suffered injustice, the verdict of public disapproval has been thoroughly corrective and unmistakable.

In a rich and unlimited nation, whose treasurer should see the ghosts of buried men reaching the dishonored Continental currency into the light of history, whose sovereign states at once legalize gambling and formally repudiate the most solemn obligations, the law of man to man must overrule the corruption of statute laws. The commercial honor of individuals fails to always direct the actions of communities, and when a prairie city of the west was moved a few miles ahead to escape legal confiscation, there might not have been a man of them all who was not proud of his personal honor.

This has not been so in the homes of the producers, and the charges of extravagance hurled at their heads are not proven by the dishonored bonds and fraudulent negotiations of more righteous cities. Extravagance is but a relative term, and the nervous operator feels as if he owed it to himself and family to buy a chicken or to open a fresh can of preserves when, after weeks of uncertainty, the modest 250 barrel tank proves too small for his lucky well.

Twenty years hence, many within these borders now, shall return and look in vain for the blackened derricks, the massive tanks, the puffing engines and giant beams that crowd in the present vision. The sons of those who worked the "mysteries" of Cherry Grove, Cole Creek, or Porcupine Run may be then bankers and producers on some yet undiscovered Benzine Run or Slippery Elm Creek, for the odor of the

wild-cat lurks in the uncouth names in which the oil man delights. They may be yet watching for \$2.00 oil with all the patience of the Democratic party, but whether in the luxury of rewarded toil or in some volcanic, gas-blown, God-forsaken, far-off land, there will be nothing with which, as a community, the coming critic may reproach them, but this—that they never "know when they get enough."

NATURAL GAS IN PITTSBURGH.

BY E. C. MERRILL.

The problem of electric lighting and the use of gas for fuel is now occupying the attention of several of the great cities. While our eyes are becoming accustomed to the brilliancy of the electric arc, let old-time gas companies experiment on cheapening the cost and increasing the quantity of their product. There is neither economy nor cleanliness in the present methods of supplying our ordinary fuels, coal and wood, for consumption. Coal has long superceded wood as the great source of supply, but its transportation and consumption are attended with many disadvantages. It is heavy, bulky and dirty, and the products of its combustion pollute our atmosphere and litter our streets. But while cities remote from the region where deep Artesian wells, spouting forth immense volumes of the valuable vapor are of ordinary moment, are exercised over new processes for manufacturing artificial gas, cities and villages more favorably located, are utilizing the hidden stores that nature has so bountifully provided.

Pittsburgh, the city which has won a name, second to none for its industries and smoke-be-grimed thoroughfares, just now is looking to natural gas for relief. It promises to lift that dingy mist that has outwitted the device of invention, and show to the busy citizen the sun at noon-day unmasked and dazzling.

Since the discovery of the enormous gas vein in Westmoreland county, at Murrys ville, in 1879, by the striking of the Haymaker or Murrys ville well, much has been said and but little accomplished, until of late, in the direction of utilizing the important product by the dwellers in the smoky city.

Pittsburgh is only twenty-five miles away, but the intervening country is rugged and hilly. A succession of deep ravines with steep banks was thought to present an unsurmountable obstacle to the laying of any line of pipe by which the gas might be conveyed to a market. The sup-

ply was not at first believed to be of a lasting nature. Some efforts were made to manufacture lampblack, but they proved a failure on account of the chemical composition of the gas. Nothing further was done to utilize this valuable production in the city so close at hand, for several years. An attempt to measure the enormous flow resulted only in collapsing the metre. This well became famous throughout the surrounding country by the name of the "burning well." Visitors from a distance came to see the wonder, and many recognized the fact, that a stupendous force was imprisoned deep down in the recesses of the earth.

During the spring of 1882, a well was drilled on the Fundis farm by Pew & Emerson and proved a gas gusher of the first magnitude. This venture was made with the intention of testing the extent of this gas territory and purposed the laying of a line to Pittsburg should it prove a success. Work on a five and five-eighth inch pipe line was immediately commenced with the Smoky City as the objective point. Pew & Emerson having secured a charter under the name of the Penn Fuel Company, which granted them the privilege of supplying the inhabitants of the city of Pittsburgh with natural gas for heating purposes. The work progressed so that by the following spring the line reached within the limits of the city of Pittsburgh. At this point it was thought advisable to complete with six inch pipe to insure a more perfect joint and guard against any accident from escaping gas. Much trouble was found in keeping the gas confined, for its composition being largely of hydrogen, the smallest sand holes in the cast fittings were ferretted out and for a time seemed to censure manufacturers upon the quality of their goods. At this juncture other capitalists became interested, and Messrs J. W. Doubleday and George Boulton, well-known producers in the McKean field, started the drill to furnish gas for the Edgar Thompson Steel Works, at Braddock. They also received a charter to supply the town of Braddock with fuel. This well was a success, and proved the field rich in its yield of hydrocarbon. This company soon commenced laying a pipe line and selected a coupling of non-threaded type. It was maintained that thereby a substantial line could be laid and a tube of less weight used than that made necessary by the threaded joint. After the laying of several miles of this line a test made under a comparative low pressure of gas proved this style of coupling a

failure and the line of no use. This tubing was in consequence taken up and in its place a substantial eight inch pipe with threaded joints put down and at this writing the line is slowly and steadily nearing its destination. Messrs. Doubleday & Boulton have finished their second well and are now drilling at their No. 3. They also have the rig up for No. 4. These three wells are located on Lion's Run, about two miles north from Murraysville. The pioneer well of this development was drilled and completed early in the summer of this year. It was owned and drilled by the Haymaker Brothers, and the first well at Murraysville, and as a reward to their perseverance, proved the largest in yield of any yet struck. This well, together with several thousand acres of land, is now the property of the Penn Fuel Company, and daily sends to Pittsburgh, thousands of feet of gas to be used in making steam and manufacturing iron, steel and glass. Besides the companies mentioned, there are others in the field seeking for territory and right of way, for, as yet, no free gas bill has become a law, and, consequently, the right to pass over property must be purchased from each property owner. The Fuel Gas Company, said to be owned by men of means, among whom, Dr. Hostetter is mentioned, is now nearing the city with two five and five-eighth inch lines. Their right of way is contested in several places by other companies, and coming late into the field, they have had much to contend with. The Fuel Gas Company also find their source of supply at Murraysville, having already completed their No. 1, a fair well. A second well is to be put down immediately. The drilling of these wells is a long and tedious job compared with that of completing an oil well in the shaley sands of McKean County. The rocks are very hard and close for the greater part of the way, so that when a well reaches 1200 feet (about their usual depth), the drillers are quite ready for a new location. The latest company that has been formed holds about twenty charters for supplying natural gas to the outlying towns in the neighborhood of Pittsburgh, but as yet has secured no territory within the known limits of the gas belt. Local papers have published some large figures for the estimated capital stock of these later companies, but the generally accepted feeling is that they have been formed more for speculative purposes than for legitimate business.

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THE REFINED MARKET.

The export trade in refined showed a marked sympathy during the month with the fractional changes in the price of certificates. Charter tonnage on the spot has been very scarce and nearly all vessels arriving from foreign ports have been subject to previous contracts. It is stated on good authority, that ninety per cent. of the vessels to arrive at New York, Philadelphia and Baltimore, up to the 1st of December, are already chartered, and the greater part of them for oil, so that no positive change in this respect can be hoped for before the early part of December. This fact has done a great deal to diminish the export demand. The following represents the fluctuations in refined during September:

		New York.	Philadelphia.	Baltimore.	London and Liverpool.	Bremen.	Antwerp.
		Cts.	Cts.	Cts.	Pence.	Marks.	Francs.
S	I	7 7/8	7 3/4	7 3/4	6 3/8	7 65	19 1/4
M	3	8	7 7/8	7 7/8	6 1/2	7 65	19 3/4
T	4	8	7 7/8	7 7/8	6 1/2	7 65	19 3/4
W	5	8	7 7/8	7 7/8	6 5/8	7 85	19 3/4
T	6	8 1/8	8	8	6 1/2	7 80	19 3/4
F	7	8 1/8	8	8	6 1/2	7 95	19 3/4
S	8	8 1/8	8	8	6 1/2	7 95	19 3/4
M	10	8 1/4	8 1/8	8 1/8	6 7/8	7 95	19 7/8
T	11	8 1/4	8 1/8	8 1/8	7	8 10	20 1/4
W	12	8 3/8	8 1/4	8 1/4	7 1/8	8 20	20 3/4
T	13	8 3/4	8 3/8	8 3/8	7	8 15	20 1/4
F	14	8 3/4	8 3/8	8 3/8	7	8 15	20 1/4
S	15	8 3/4	8 3/8	8 3/8	7	8 15	20 1/4
M	17	8 3/8	8 1/4	8 1/4	7	8 20	20 1/4
T	18	8 3/8	8 1/4	8 1/4	7	8 20	20 1/4
W	19	8 3/8	8 1/4	8 1/4	7	8 15	20 1/4
T	20	8 1/2	8 3/8	8 3/8	7 1/8	8 15	20 1/4
F	21	8 1/2	8 3/8	8 3/8	7 1/8	8 15	20 1/4
S	22	8 1/2	8 3/8	8 3/8	7 1/8	8 20	20 1/2
M	24	8 1/2	8 3/8	8 3/8	7 1/8	8 15	20 3/8
T	25	8 1/2	8 3/8	8 3/8	7 1/8	8 15	20 3/8
W	26	8 1/2	8 3/8	8 3/8	7 1/8	8 15	20 3/8
T	27	8 3/8	8 3/4	8 3/4	7 1/8	8 15	20 3/8
F	28	8 1/2	8 3/8	8 3/8	7 1/4	8 00	20
S	29	8 1/2	8 3/8	8 3/8	7 1/4	8 00	20

The *Oil and Drug Reporter* of Oct. 2d, says: "Refined in cases has continued to attract attention. Prices have been advanced to 9 7/8c for export, and contracts at 10c have not been infrequent. The former price, however, more nearly represents the market. The inquiries have been about equally divided between the Levant, Mediterranean and East Indian markets. Shanghai has been a good customer, and rumors of several steamers to general Chinese and Japanese ports have been current. The tone on cases is strong. Naphtha has remained firm, and several cargoes have changed hands on the present basis of 5 1/2c. The inquiries have come from London, Bremen, Havre and Marseilles. Residuum and gasoline are slow for export, but for the latter active domestic demands have been made, and prices are now about 1c up, with the offerings much curtailed.

Refined for domestic uses has been firmly quoted, and all are agreed that the present situation is gratifying and decidedly satisfactory. Prices have attained a level more in consonance with crude; the offerings are not burdensome and there are steady inquiries for all offerings. Standard white, 110 test, has been sold at 8 3/4c, and a few still quote that figure, while others ask 9c, and even 9 1/8c; 120 test is selling at 9c, but others will not accept less than 9 1/4@9 1/2. There have been large sales of 130 test "flash" at 9 1/4c; 600 barrels changed hands at that price to-day; others quote 9 1/2@9 3/4c; 150 water white has been selling freely at 11 1/2c, and to-day 350 barrels were taken at that price. It will be noticed, therefore, that the present situation is eminently sound and healthy."

Statistical History of Balltown and Cooper Districts.

The gauges of the Balltown and Cooper districts which are taken weekly by the scouts, are tabulated below.

BALLTOWN PRODUCTION.					
Date.	No. Wells.	Barrels.	Rigs.	Drilling.	Total.
April 28	983	10	10	20	
May 8	970	...	...	18	
May 11	11	1466	9	8	17
May 19	13	1146	7	8	15
May 25	14	1065	7	12	19
June 1	17	1689	7	8	15
June 9	17	1800	5	9	14
June 15	18	1851	5	10	15
June 22	20	2925	10	8	18
June 29	22	2499	11	7	18
July 6	23	2131	11	9	20
July 14	24	2063	7	13	20
July 21	25	2223	8	13	21
July 27	25	1983	9	14	23
August 4	31	3285	13	8	21
August 11	34	3586	12	7	19
August 17	35	4811	11	10	21
August 25	36	3328	11	12	23
September 1	37	3095	8	16	24
September 8	39	3287	11	15	26
September 15	41	4155	11	15	26
September 22	45	5066	8	12	20
September 29	48	4569	9	12	21
October 6	49	6458	12	10	22
October 13	51	4851	11	9	20

COOPER PRODUCTION.					
Date.	No. Wells.	Barrels.	Rigs.	Drilling.	Total.
February 28	16	1599	...	...	...
March 10	22	3938	...	...	...
March 15	25	1941	...	...	...
March 21	25	1500	...	...	...
March 23	26	2403	...	...	...
March 27	27	2355	...	...	...
March 31	32	3939	...	...	...
April 11	37	4624	19	22	41
April 19	46	3234	14	28	42
April 28	47	4944	13	26	39
May 3	51	4224	...	...	...
May 11	60	4326	14	18	32
May 19	63	4632	17	22	39
May 25	68	4007	14	19	33
June 1	75	5011	13	20	33
June 9	78	4881	19	17	36
June 15	82	4140	15	22	37
June 22	85	4032	13	18	31
June 28	85	3735	15	17	32
July 6	90	3994	15	11	26
July 13	93	3306	18	11	29
July 20	97	3401	21	8	29
July 27	98	3714	17	12	29
August 4	99	3129	20	15	35
August 10	101	3250	18	17	35
August 17	102	3279	16	19	35
August 24	106	3407	14	16	30
August 31	111	3811	13	12	25
September 7	111	3066	13	15	28
September 14	116	2939	13	12	25
September 21	119	3911	11	11	22
September 28	121	3832	10	13	23
October 5	123	4142	13	11	24
October 12	125	3910	11	9	20

THE GAUGE WHICH CONFIRMS.

Official Report of the Committee of the Oil Exchanges on the Accounts and Stocks of the United Pipe Lines.

To the Oil City Exchange, Oil City, Pa.; Titusville Oil Exchange, Titusville, Pa.; New York Petroleum Exchange, New York; Pittsburgh Oil Exchange, Pittsburgh, Pa.; Bradford Oil Exchange, Bradford, Pa.; Producers' Oil Exchange, Bradford, Pa.; Philadelphia Oil Exchange, Philadelphia, Pa.; Warren Oil Exchange, Warren, Pa.; Franklin Oil Exchange, Franklin, Pa.; Peoples' Oil Exchange, Franklin, Pa.:

The following letter :

UNITED PIPE LINES,
OIL CITY, Pa., Aug. 17, 1883. }
Chas. L. Wheeler, President Conference Oil Exchanges, Bradford, Pa.

In accordance with the usual custom of the United Pipe Lines, the annual inspection of the stock of oil in our custody, will be made on Sept 1st, 1883, and that the trade may be able to confirm our reports, we suggest that your body appoint a committee to witness this inspection and also to examine our books and accounts of oil liabilities.

By order of Executive Committee.

J. J. VANDERGRIFF,
President.

and the correspondence which followed between Mr. Wheeler and the presidents of the several oil exchanges of the country led to the creation of your committee. The first meeting was held at Oil City, Pa., August 21st, 1883, when a consultation was had with the officers of the United Pipe Lines, and plans arranged for carrying out the work entrusted to them. To systematize the labor and facilitate its execution, the field was divided into two districts, Warren and the territory south of that point being assigned to a sub-committee, whose headquarters were in Oil City, and that north of Warren to a sub-committee making Bradford their headquarters.

At 6 o'clock p. m., August 31st, the United Pipe Lines stopped the receiving of oil from the wells and delivery of oil to shippers, and until 12 o'clock, noon, September 1st, no oil was received into or delivered out of the pipes or tanks of the line. Between the hours of 7 o'clock a. m. and 12 o'clock, noon, on Saturday, September 1st, all the tanks connected with the United Pipe Lines were carefully measured by men specially engaged for this purpose by your committee. In the upper field were 1,086 iron

tanks and 15 wooden ones, and in the lower field were 287 iron tanks and 107 wooden ones. To accomplish this work required in the upper district a force of 113 gaugers, and in the lower district 59, who acted under the following :

Instructions to gaugers employed by the Committee of Oil Exchanges for supervising the inspection of the United Pipe Lines, September 1st, 1883.

First—Report promptly on Saturday morning, September 1st, at 7 o'clock, as you have been notified.

Second—Enter the register number of the tank and the total depth of fluid as you shall find it to be by actual measurement, in a small memorandum book at the time measurements are taken.

Third—Make out your blanks from these memorandums and preserve book for verification and reference.

Fourth—Satisfy yourself of the correctness of the gauge poles used in taking measurements.

Fifth—Make out blanks and have the signatures of the pipe line gauger and yourself attached and return the same as promptly as possible to the office of the committee.

On Monday, September 3d, the work of inspecting the contents of the tanks was commenced, and for this were engaged by the committee thirteen skilled and experienced men in the upper district and six in the lower.

To arrive definitely at the amount of sediment, water and "B S" in the total fluid gauged on September 1st, the inspectors were sent out under the following directions :

The following instructions will be observed in making the oil inspection under the supervision of the Committee of the Oil Exchanges, beginning September 1st, 1883.

First—Note the amount of fluid as found, giving date of inspection of each tank.

Second—Take sample at each hatch and give the average. To enable you to correctly determine the value per cent. of good oil from "B S," treat a few samples at a temperature of 125 degrees, allow them to cool and then make measurements. This will assist the judgment in fixing values without treating every sample. On the first page of the books herewith you will find the form to be used, giving to each tank a page. The headings are (1st) Register No. of Tanks; (2d) Total fluid; (3d) Sediment; (4th) Free water; (5th) B S; (6th) Quality—good, bad, worthless; (7th) Per cent of good oil from B S; (8th) Date of inspection; (9th) Signature of inspector. These are not to be copied, but the original book used forwarded to the office of the committee as soon as filled. Note also the working of station tanks as "W" and state if oil is being received when inspection is made. Do not attempt to do this in a hurried manner, but rather strive for accuracy, not leav-

ing a tank until satisfied of the correctness of results obtained. When not clear upon any point ask for instructions.

C. S. WHITNEY.

Chairman of Committee.

This work of inspecting the contents of the tanks was not completed until about the 20th of September, and we are satisfied that it was performed with care and thoroughness. As the reports from the gaugers and inspectors were received, they were entrusted to accountants employed by your committee for the reduction of the measurements into quantity and for compilation. This having been accomplished we herewith present the results, together with the committee's estimate, based upon actual experience and the tests made by their inspectors, the amount of merchantable petroleum obtainable from the "B S" by methods at the command of the pipe line.

Total contents of tanks gauged Sept. 1, 1883		36,227,589.03
Sediment as per inspection	14,810.61	
Free water as per inspection	201,360.26	
"B S" as per inspection	3,012,473.82	
	<u>3,228,644.69</u>	
Amount of clear merchantable oil		32,998,944.34
Amount of merchantable oil obtainable from "B S" by means at command of pipe line, namely, by heating by steam		<u>1,383,575.10</u>
Total amount of merchantable oil to meet oil liabilities of United Pipe Lines Sept. 1st, 1883		34,382,519.44

To a sub-committee consisting of Messrs. J. B. Smithman, Nic. Mehlen and Joseph H. Simonds was entrusted the examination of the books and accounts of the line, who report that by the general ledger of the company, the liabilities for oil appear to be as follows:

	Barrels.
For credit balances	5,767,110.21
For registered certificates	3,433,188.50
For outstanding acceptances—Series 0	13,623.35
Series 1	17.90
Series 2	2,973,569.00
Series 3	498.77
Series 4	21,516,705.00
	<u>24,504,414.02</u>
Total liabilities Sept. 1st, 1883	33,704,712.73
Surplus	677,806.71

Various tests were applied to verify the items forming the above amounts, all of which tended to prove their correctness, and while it is impossible to make an examination which would give absolute proof of their accuracy, the admirable method of keeping the accounts, which your committee examined in detail, and the results of the several tests made, originating with the different members of the committee, confirmed them in their belief that the statement above is a true exhibit of the liabilities for oil of the company. It appears to your committee that from the complete and thorough system of checks and safeguards thrown about the issuing of acceptances, that it would be almost impossible for a fraudulent or erroneous acceptance to get into circulation.

At the suggestion of your committee the United Pipe Lines publish, in pamphlet form, for distribution among the oil exchanges and banks in the country, a list of the tanks connected with the lines, with the contents of each, as also a list of the acceptances and registered certificates outstanding at the close of business on August 31st, giving the number and amount of oil represented by each, together with a statement in detail of all lost acceptances for which duplicates have been issued, to which we call the careful attention of the trade, and ask for the same a critical examination by every holder of acceptances of the United Pipe Lines. Your committee have suggested to the officers of the line, who have acceded to the same, that similar lists be issued and distributed at least twice a year, believing that the opportunity thus afforded for frequent comparison of acceptances outstanding will be a great additional safeguard to the public.

We realize the great importance of the work entrusted to us and have endeavored to fulfill our duties with care and completeness, now submitting the results, with the hope they may prove of value and benefit to the entire trade.

CHARLES S. WHITNEY, Bradford, Pa. Chairman.

J. B. SMITHMAN, Oil City, Pa.

NIC. MEHLEN, N. Y. Petroleum Exchange.

DAVID KIRK, Bradford, Pa.

GEORGE P. HUKILL, Oil City, Pa.

J. J. CARTER, Titusville, Pa.

H. S. MORRIS, Olean, N. Y.

O. P. TAYLOR, Wellsville, N. Y.

BATEMAN GOE, Bradford, Pa.

THOMAS B. SIMPSON, Oil City, Pa.

JOSEPH H. SIMONDS, Bradford, Pa.

Albion, in Erie county, is very much agitated over the discovery of a heavy lubricating oil of 19 gravity, at a depth of fifty feet. Two wells are down on the J. A. Tracey tract, whose estimated yield is one barrel per day. The sand rock is five feet thick, and the wells are rigging up to pump. Three more are to be put down immediately.

The new well drilled near Fredonia, N. Y., was torpedoed in the gas sand, but the supply proved less in amount than was expected. The hole will be abandoned and another test made beyond the present location. Ninety rods west of this failure a strong gas vein was encountered at a depth of less than a hundred feet.

Subscribe for THE PETROLEUM AGE.

PETROLEUM EXPORTS.

THE exports of refined, crude and naphtha, from all United States ports from Jan. 1 to Oct. 6, for the years 1882 and 1883, were as follows:

	1883. GALLONS.	1882. GALLONS.
From Boston	3,694,792	5,222,504
Philadelphia	59,353,349	70,828,763
Baltimore	7,096,429	10,124,323
Richmond	173,449	382,230
Total	70,318,019	86,557,829
From New York	326,988,537	398,541,501
Total exports from U. S.	397,306,556	395,099,330

The appended table from *The Shipping List*, of October 13, gives the total exports of refined, crude, naphtha and residuum from New York to foreign countries from Jan. 1st, to Oct 13, 1883, and for the same time in 1882.

	1883.	1882.
GREAT BRITAIN.—London	28,883,327	20,843,633
Liverpool	7,104,718	6,358,256
Bristol	2,018,234	2,659,485
Ireland	4,760,863	4,352,246
Other ports	4,920,925	4,595,592
GERMANY.—Bremen	36,321,081	32,890,967
Hamburg	30,553,002	31,825,087
Königsburg and Stettin	4,766,126	10,429,981
Dantzic	1,110,141	2,120,057
Other Ports	835,570	1,282,505
FRANCE.—Marseilles		331,945
Havre		188,730
Norway and Sweden	7,189,009	6,780,961
Russia	1,539,156	1,609,272
Denmark	8,402,021	7,002,329
Belgium	32,619,715	22,679,608
Holland	11,950,110	10,705,492
Spain	147,770	5,000
Portugal	1,705,959	1,215,529
Gibraltar and Malta	1,807,438	893,510
Italy	1,815,896	1,197,877
AUSTRIA.—Trieste, etc	10,619,341	10,997,337
Greece	1,280,410	379,300
Turkey in Europe	3,013,621	3,522,839
Turkey in Asia	3,080,742	1,112,300
India, Siam, etc	12,660,900	18,873,480
China, Japan, etc	20,242,670	24,522,040
East Indies	26,052,270	23,481,575
AFRICA.—Alexandria, etc. E	2,064,970	1,150,600
Canary Islands	111,845	111,370
Other Ports	4,615,029	3,248,234
Australia	1,512,244	2,110,054
New Zealand	516,460	622,578
Sandwich Islands	202,500	60,000
SOUTH AMERICA.—Brazil	4,377,885	4,021,143
Argentine Confederation and Uruguay	3,169,370	2,647,083
Chili and Peru	1,203,400	1,284,810
U. S. Columbia	245,354	152,065
Venezuela	496,932	414,824
Other Ports	114,461	119,490
Central America	192,002	135,751
Mexico	1,112,584	861,144
British North American Colonies	956,096	472,608
Cuba	186,920	715,849
British West Indies and British Guiana	1,338,250	1,079,039
Other West Indies	762,937	1,014,945
Total	Galls. 288,580,254	273,007,720

	1883. GALLONS.	1882. GALLONS.
FRANCE.—Havre	7,636,870	6,059,482
Marseilles	2,622,902	1,760,678
Bordeaux	1,687,760	1,666,584
Dunkirk	5,006,052	3,152,749
Other Ports	5,772,438	5,779,192
Antwerp		
Bremen	753,616	1,100,621
Norway and Sweden	62,374	148,235
Spain	9,244,038	10,034,823
Cuba	1,387,505	2,306,046
Other Ports	2,193,471	
Total	Galls. 36,367,026	32,008,410

	1883. GALLONS.	1882. GALLONS.
Great Britain	4,525,467	4,566,623
France	3,595,336	3,195,273
Germany	1,561,081	1,002,175
Other Europe	1,508,878	1,071,837
Various Ports	80,358	136,920
Total	galls. 11,181,120	9,972,828

	1883. GALLONS.	1882. GALLONS.
To all Ports	5,376,837	3,567,359
Total Refined since January 1, actual shipments	288,580,254	
do do do do crude equivalent	384,773,672	
do Crude do do actual shipments	36,367,026	

Grand Total Crude and Crude equivalent galls. 421,140,698
Same time, 1882 396,018,703

The following table shows the number of vessels, loading and to load with Petroleum at the principal American shipping ports, Oct. 13, 1883.

PORTS.	REFINED BARRELS.	REFINED CASES.	CRUDE.	NAPH.	RES.	TOTAL.
New York	60	28	12	8	3	111
Philadelphia	18	11	1	.	.	30
Baltimore	10	.	.	.	.	10
Total	88	39	13	8	3	151

SUMMARY of United Pipe Line statements for August and September, 1883.

	September. Barrels.	August. Barrels.
Receipts, all sources	1,672,488.38	1,800,032.23
Deliveries	1,951,490.28	1,776,750.98
Gross Stocks	35,792,108.67	36,227,589.03
Sediment and Surplus	2,375,432.36	2,522,876.30
Net Stocks	33,416,676.31	33,704,712.73
Outstanding Acceptances	27,736,393.02	27,937,602.52
Credit Balances	5,680,283.29	5,767,110.21

PIPE LINE RUNS.

The difference between the Bradford and Allegany runs and those of the entire region make up what is termed the outside runs. Taken for a number of consecutive months these show the production of all sections of the oil regions outside of Bradford and Allegany. The following table shows the average daily runs for Allegany, Bradford, and the outside region from the 1st of January.

1883. MONTH.	RUNS. BRADFORD.	RUNS. ALLEGANY.	RUNS. OUTSIDE	TOTAL. DAILY RUNS
January	36,847	14,106	14,172	65,125
February	38,481	13,154	13,573	65,208
March	37,754	12,619	14,031	64,404
April	38,810	13,742	16,655	69,207
May	39,039	13,793	16,613	69,445
June	38,614	13,499	18,330	70,443
July	36,489	12,381	16,758	65,628
August	37,165	12,743	18,969	68,877
September	35,894	12,358	17,958	66,210

Oil region railroad time tables, corrected each month, will hereafter be a special feature of the AGE.

The average daily shipments exceeded the average daily runs 11,372 barrels per day in September.

The United Pipe Lines have grades made for nine iron tanks at Olean. They have more empty tankage at Colegrove and Wellsville than they are building.

The village of Irwin, in Westmoreland county, is suffering from a severe attack of oil fever. Stock has been fully subscribed for the purpose of sinking a test well, and the promoters of the venture are sanguine of good results. This is generally the case before the walking-beam arrives on the ground.

THE PETROLEUM AGE.

DEVOTED TO THE

Interests of the Petroleum Trade.

PUBLISHED MONTHLY AT

BRADFORD, PA.

BY McMULLEN & SNELL.

W. C. ARMOR, MANAGER.

J. C. McMULLEN.

A. L. SNELL.

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THE CLEARANCES.

The amount of oil handled from month to month, at the various exchanges in the country, appears enormous to an outsider, but it must be borne in mind that these figures as reported by Clearing Houses, represent double the amount of actual business, and, in many cases, four times. Thus, a broker who buys 5,000 barrels of oil on the floor, and has it placed in a bank, through the Clearing House, is counted as transacting a business of 10,000 barrels. The broker who sold him the oil, delivered it to the Clearing House, where it was counted in his account as 10,000 barrels. In this special case the simple sale and purchase of 5,000 barrels of oil would be counted in the Clearing House report as 20,000 barrels. Then again, at every fluctuation of the market, many thousand barrels of oil change hands, and each sale and resale is placed upon the Clearing House sheets. Twenty thousand barrels of oil passing through quick and numerous changes of possession in the course of a single day's business, rapidly counts up into the hundred thousands. The clearances of the Oil City Exchange during September amounted to nearly 9,000,000 barrels a day. An actual count of the sales and resales, made the daily average transactions 3,484,000 barrels. And as a matter of fact, less than 100,000 barrels of oil, in crude certificates, would be all that was really necessary to roll up into this gigantic mass of actual business transactions.

The following is the record of the business for September as shown by the statements of the different Clearing Houses:

	September. Barrels.	August. Barrels.
Bradford, Oil Exchange	127,660,000	115,380,000
Bradford, Prod. Pet.	30,160,000	27,120,000
Oil City	222,800,000	200,062,000
New York, N. Y. Pet	158,292,000	140,330,000
New York, National	109,776,000	117,382,000
Pittsburgh	143,314,000	110,374,000
Total	792,002,000	710,648,000

THE BRADFORD EXCHANGES.

Early in September the members of the Bradford Oil Exchange moved back into their old quarters after several months sojourn in the terpsichorean temple on Boylston street, known as Orpheus Hall. During their absence an addition of thirty feet has been made to the assembly room and the interior elegantly refitted and refurnished. The mural decorations are very artistic, and the entire embellishments tasteful and pleasing. The old gallery over the entrance remains unchanged, but henceforward it will be considered as the particular property of the ladies.

The enlargement of the ground floor gives increased space to the telegraph offices and affords most comfortable quarters for the transaction of the Clearing house business. Immediately adjoining the wash and cloak rooms, on the left of the hall as you face the rear, is a large room, separated from the main floor by an ornamental barrier. This is the public gallery. An entrance to this gallery is effected through an alley opening off Pine street. This gallery on the ground floor is a new feature of an oil exchange and gives the visitor splendid opportunities for observing the inside workings of the petroleum market. Another novel feature of this enlarged assembly room, is an elevated platform in the lower end of the hall, with elegant seats rising above each other, tier upon tier, and commanding a full view of the bull-ring. This is intended for the accommodation of visiting speculators alone. Here brokers can bring their customers, give them a comfortable seat, and have uninterrupted access to them during business hours. A person occupying one of these seats, has all the privileges, with the exception of trading, that the floor affords. From his elevated position he can watch the changing fluctuations and direct the movements of his broker.

The Bradford Oil Exchange has enjoyed uninterrupted success from its inception, and the members are to be congratulated upon possessing a place of business that, for beauty of appearance and convenience for the handling of petroleum, is unsurpassed.

The directors of the Producers' Petroleum Exchange have called for the fourth and last assessment of twenty-five per cent. on the capital stock. The new building is in process of construction, and the second story is already up. It will have a frontage of one hundred feet on Main street, and face the public square. The

outer walls are of pressed brick with handsome stone trimmings, and the character of the structure is at once solid and imposing. The assembly room will be ready for use about the 1st of December. This exchange was started the 1st of January last, with a membership of five hundred and capital stock of fifty thousand dollars. The cost of the building is estimated at thirty-five thousand dollars.

THE PRODUCING REGION.

THE ALLEGANY FIELD.

During the month of September a great volume of new work was under way in the Allegany field, resulting in the completion of 161 wells. Along the confines of the field and wherever there is available room, the drill has been urged with vigor. Territory which has been run over and neglected in the rush for something better, is now being hunted down and perforated. It would seem from the score each month that the want of territory would, alone, curtail the volume of new work while the price of oil ranged above the dollar mark. The field, as now outlined, has a length in an easterly and westerly direction of twelve miles. Toward the close of the month, Howard, O'Conner & Shanley completed a well on lot 106, South Alma, which made a fair showing and exerted a depressing influence on crude values in Eastern speculative circles. The sand, which had a thickness of thirty-four feet, was struck at a depth of 1205 feet. The well was given a 60-quart shot at noon on the 29th of September, packed and tubed with two inch pipe during the afternoon, and began flowing at 7 p. m. A production of 43 barrels is recorded for the first 24 hours. At 1 p. m., October 5th, the 600 barrel tank contained 26½ inches and at 11 p. m. on the 6th, the gauge pole showed 29 inches. Reduced to barrels, this would make a daily average of between 19 and 20 barrels for the first week. The gas is weak and it is doubtful if it is not necessary to pump the well after it has become more aged. Inch pipe will be inserted with the expectation of making the well flow with greater ease. At the present writing, October 10th, the well is in an experimental condition, and its regular, steady-going gait has not been ascertained. Its geographical position on the map places it three miles ahead of the eastern border line of the old development. From the southwestern corner of South Alma a line of dry holes and wells, which made a small

display of crude, dots the field to the old Triangle well on lot 4, Scio. The Wellsville & Alma Oil Co.'s test on lot 25, South Alma, the Schoff well on lot 72, O. P. Taylor's Nos. 1 and 2 wells at Pikeville, and the Wyckoff well on 26, Alma, furnished the indicators which led to the discovery of the Allegany field. The whole Allegany development, excepting South Alma, lies to the west of this row of failures. To the east of these guides, the well on 106 has drawn attention. Well defined streaks of good and light territory alternate along the whole length of the Allegany belt. Starting from the Torrey & Mather well on lot 53, it becomes easy, to demonstrate the existence of a streak of territory running in a northeasterly direction to the well on 106. There is a chance for a connection between the main field and the South Alma development. These are the two theories now entertained, and it remains for the drill to pencil the outlines of the territory which will be found about the new strike. The production of the field continues to hold between 12,000 and 13,000 barrels, and is not likely to pass far, either way, while the drill continues to vibrate at its present speed.

The well drilling on the Brown tract in the town of West Union, south-western part of Steuben County, N. Y., came in dry, October 10th. It was drilled with the hope of finding oil east and north-east of the Allegany field.

BRADFORD FIELD.

Operators are more busily engaged shooting old wells in the Bradford district than their Allegany neighbors are drilling new ones. A gentleman of long experience in the torpedo business, thinks that twenty wells per day would be a modest estimate for the number shot. This would make an aggregate of 600 per month. In August 98 wells were added to the producing list, and 85 were completed in September. All available figures which can be marshalled on stocks at wells show the production of the Bradford district in August and September was not below 35,000 barrels. This shooting will continue until the cold weather renders cleaning out inconvenient. The reckless use of the explosive compound will hasten the depletion of the field. A glance at the tables printed elsewhere, will show that new work is being done principally by the large firms. On the first of the month there were 74 rigs up and building, eighteen others had been standing for thirty days or more, and the drill was vibrating at 83 wells. R. R. Armor & Co. are drilling a wild-cat well on warrant 3710 in the Sugar Run section. The

wells drilled near the Brambly well on the Four Mile were small compared with the central well around which they were clustered. A rig has been built on the widow Winchell farm, near Windfall atation, on the K. & E. R. R.

WARREN AND FOREST.

Mr. John F Carll, the painstaking oil region geologist, says in his comprehensive volume on the geology of Warren County, that "from the top of the highest oil producing rock in Warren County, down to the lowest yet discovered, we have a vertical range of oil bearing rock of about 1400 feet."

With such a wide vertical range of oil bearing rock and a large area in the southeastern part of the county still but partially tested, the possibilities of the future can only be conjectured. Forest and Warren, through their phenomenal crude resources are not likely to afford the elements which will produce such marked changes in values as were wrought last year. The Cooper and Balltown districts are controlled by few hands and have been drilled at a slow pace compared with the Cherry Grove fiasco. Besides the production has not been raised to that point from which it could take a lofty fall.

The new development at Wardwell, lying in range northeast of Stoneham, gets its oil from a sand in the same plane with the Clarendon sand. The only difference noted is a loose texture in the Wardwell rock. On the 9th of Oct., the eleven wells which have been drilled in this section were producing 250 barrels. The Reed well, on the north side of the Allegheny and the Rhodes No. 2, on the south bank of the stream have been completed since the first of the month and are the largest wells yet found in the field. The sand here has a thickness of from forty to forty-six feet. Not more than twelve feet of the sand rock is productive. The section stretching from the Wardwell farm to Tiona, will furnish the producer with considerable light territory.

The Cooper tract, for twenty-four hours ending October 5, showed a production of 4,142 barrels from 123 wells. During that week eight wells were torpedoed and two completed. The wells about the old Reid & Brenneman, now McCalmont Oil Co.'s well, on lot 440, have been drilled to the third sand without finding oil. The McCalmont Oil Co.'s No. 7, on lot 14 of the Henry lands, is a light producer, from both sands. It is the most northerly of the wells yielding oil from the third sand. The McCalmont Oil Co.'s No. 4, on the southeastern corner of lot 17, proved a duster. Their No. 5, the

largest second sand well yet struck in the Cooper district, was raised to 400 barrels for the succeeding twenty-four hours after being drilled in to the third sand. The test well on the southwestern corner of lot 398, or the southeastern corner of 399, is the most important well drilling on the outskirts of the Cooper district. The well on 313, on the east side of the large gas wells in that section, demonstrated the existence of a larger gas area. Fertig & Henne's No. 4 well, east of the Cooper tract along the banks of the Tionesta, 1,200 feet north of the county line, is in the producing list at a 10-barrel gait, after being shot in both sands. There is a chance for a streak running from this well in a northeasterly direction east of the McKinney well, on the Williamson tract. The well drilled sixty rods southeast of the Blue Jay No. 1 and noted as Blue Jay No. 3, is recorded with the dry holes. Melvin, Walker, Shannon & Co., and the Union Oil Co., have completed two fair producing wells on division A. of lot 3193. There is a small amount of room for an enlargement at this point. The statistical history of the tract is published elsewhere.

BALLTOWN.

There have been a few surprises but no startling changes in the Balltown district since the issue of the September AGE. There is no reason for changing the figures then made that the area of the field when completely outlined will not exceed two square miles or 1,280 acres of territory. What it will produce on an average to an acre is still a matter of conjecture.

May, Kelly & Grandin's No. 15, sixty-two rods southwest of No. 9 and on a line passing through the row of large wells on lot 5,236, was drilled into the sand September 22d. During the thirteen hours ending at seven o'clock on Sunday morning the well averaged ten barrels per hour. On Monday it was drilled deeper, and when eighteen feet in the sand began flowing steadily. The first hour it did fifty-five barrels. On the 29th of September the gauge showed that the well was producing 395 barrels. Their No. 17, on the north bank of Tionesta creek, is almost due south of No. 15, and distant from it thirty-eight rods. The streak at this end wears a gaping aspect and may be prolonged. In Cherry Grove, where the oil was found deep in the rock, the wells were near the bordering lines of the pool. Welsh & Co.'s No. 4, northwest of No. 1, on a line from 5,236, was too far west to catch the prolific streak and keeps company with May, Kelly & Grandin's No. 4 as a duster.

Murphy & Galey's No. 3, on lot 3,133, proved a pleasing surprise to the owners by flowing steadily when one bit had passed into the sand. The sand was struck at a depth of 1,801 feet. Mr. Galey pronounces it the deepest well in the Balltown field. The gauge pole showed that the well had flowed through one two-inch pipe the first hour fifty-five barrels. The Balltown Oil Company's No. 12, on lot 4,821 along the western edge of the belt, finished since October 1st, produced ninety-seven barrels the first twenty-four hours and seventy-five the second. The Howe Oil Co.'s No. 5 and No. 7 were drilled into the sand September 20th. No. 5 showed drainage in the top of the sand, and the first three hours averaged twenty barrels per hour. No. 7 produced about 585 barrels the first day. The Howe No. 5, which lines in with Porcupine No. 9, was drilled deeper on Saturday and again on Sunday morning. On that day the owners were running the well on a Mehoopany basis, and no one was allowed to gauge it. The well was flowing at a tremendous pace and doing easily 2,000 barrels. Three two-inch pipes did not have the capacity to carry the oil from the gas tanks to the receiving tanks. The well is by far the largest one struck since the Reno No. 1, on Cooper Hill, paralyzed the trade last December. Howe No. 10, one location north of No. 7, proved a much larger well than the theoretical lines of development guaranteed. It did not have the geographical position, but the first hour's gauge on Sunday gave it the remarkable record of 168 barrels, the second hour 92 barrels. At noon on Monday, October 10th, the well was only doing fifteen barrels per hour. It was drilled deeper towards evening, when it flowed 208 barrels in two hours. Thursday, October 11th, the well was doing twenty barrels per hour. Howe 13, two locations north of No. 5, was brought in October 10th. During the thirteen hours ending at noon on the 11th, the well produced 620 barrels and was then flowing twenty-five barrels per hour.

The Porcupine Oil Co.'s No. 5, northeast of Porcupine No. 1, struck sand about one o'clock on the morning of September 15, and the first twenty-four hours is credited with a production of 135 barrels. When the drill cut the pebble rock deeper this production was more than doubled. Porcupine No. 10 was opened up late in the afternoon of September 22, when it made its crude bow at the rate of forty barrels per hour. As the drill traveled on its downward course it failed to exhibit the producing qualities which

distinguished its southern neighbor, No. 9. The most important well completed during September was the Porcupine Oil Co.'s No. 11, along the northern line of lot 3,194 and 1,200 feet west of the Gartlan, or Porcupine No. 4. The well was drilled into the sand after the market had opened September 22, and responded to the touch of the drill in a manner most gratifying to the tireless Murphy, who was watching Feely guide the drill into the sand. The well flowed steadily when the sand was first perforated, and the gauge for the first hour showed a yield of fifty-five barrels. The first twenty-four hours the well produced 550 barrels. By agreement Captain Murphy allowed the scouts to gauge the well after the expiration of thirty minutes, the time required to do what he chose on the market. A line which has a magnetic bearing of $52^{\circ} 10'$ drawn through the great wells at the southwest, beginning at May, Kelly & Grandin's No. 3, passes about 800 feet west of Porcupine No. 11 and eight rods west of the Markham gas well, on the northwestern corner of lot 741. One peculiarity of Porcupine No. 11 is the large amount of gas which comes forth with the oil. It has the appearance of being near the middle ground, between the gas and the oil. The Mehoopany wells, on lot 590, at the northeastern end of the Cherry Grove belt, were sprayers, and Porcupine No. 11 partakes mildly of the nature of a spray well. The Duke & Harris well, on the southeastern corner of lot 744, and the Briody & Barnsdall well, on 718, came in dry. The Duke & Harris is very important, through its position on the map. It demonstrates that the streak which is likely to end before it reaches the Markham gasser must pass to the east of this well. The well of Vandergrift, Miller & Co., on 731, has been delayed by the necessity of casing deeper to shut off salt water.

There is no need of raising a cry that the drill is to pause by mutual agreement of the three firms who control the lion's share of the territory. Two rows of wells stand along every boundary line where properties owned by different firms adjoin. Between Murphy, the energetic Celt, and Berry, the sturdy Teuton, the work of development is hastened by a feeling more intense than that born of generous rivalry. Things have come to a strange pass on the Porcupine, and the scout or reporter in quest of information must take sides against the shamrock, or remain beyond the opposing lines of the German. On lots 4,792 and 3,194 there is room for the play of the drill, but the necessity for haste

does not exist. Glycerine is extensively used, and as many as ten wells in a week have been shot; one-fifth of the whole number in the field. When the wells now under way are completed, Balltown will not have much to hold in suspense over the trade. The field is however likely to be carefully outlined before it is entirely drilled over. September 23d, when Howe No. 5 was flowing so heavily, the production of the Balltown district passed above seven thousand barrels. The table published elsewhere gives it weekly.

MACKSBURG FIELD.

There have been no wells finished in the Macksburg field during the past two months, far enough in advance of developments to change the outlines of the field or throw any light on the drift of the development. The Hulings well, one mile due south of Macksburg on the Lewis Waller farm, made a fair crude showing, but through a series of accidents is not in producing condition. The old timers who have been operating in the field, hover around the quiet hamlet of Macksburg, and their operations are confined in the main to the Duck Creek valley. It is well known that the gas wells and dry holes north and west of Macksburg, show a thin layer of sand and that the rocks thicken toward the east. Bradford operators who have recently become interested in the field, have two wells under way, four miles apart, on a north-east and south-west range. The Mills & Mullin drilling well on the Clark farm is two miles northeast of Macksburg. A line drawn from the town to the well, has a magnetic bearing between 70° and 80° northeast. From the Mills & Mullin well to the well of Bradley, Foster & Painter Bros., the distance is four miles. Penciled on a crude map this line would have a magnetic bearing between 25° and 30° north-east. These wells will be quite important in determining which way the belt is to take its course. Well informed prospectors, who have lately visited the district, state that the want of water is a serious draw back to its practical working.

The water obtained by shallow drilling, as also that from the salt water sand, contains so much of mineral substances that it is unfit for use in boilers or for domestic economy. There is such a volume of salt water coming from the salt water sand when it is tapped that all surface water around a well is spoiled when the two come in contact. A gentleman who has lately visited the field states that an artificial water sup-

ply will be necessary to operate the high ground of the field. Gentlemen of a geological turn of mind assert that the salt water sand or formation underlies the whole country from Baldridge to West Virginia. Speaking of the configuration of the ground an explorer said the field from an elevated point of sight had the appearance of a vast group of ant hills. Since June the Standard Oil Company, the outside refiners and prominent producing firms and speculators, have had scouts in the field. As usual, the Standard people were among the first to scan the crude horizon in this section of the Buckeye state. The United Lines have made a survey for a pipe line from Macksburg to Marietta. The distance on an air line is about fifteen miles. Mr. Stephen Daly, who has had charge of the Allentown division of the Allegheny field, has been transferred to Macksburg. They have not begun active operations in putting down pipe, but they are sure to be around when the producer wants them.

The Macksburg Oil Company, or Laing, Keeler & Co., torpedoed their No. 2 well on Thursday, October 11th, with twenty quarts of glycerine. The well is located along the railroad, about a half mile southeast of Macksburg. The sand had a thickness of twelve feet four inches and the well was drilled to a depth of 1,451 feet. The well is rated by the owners at ten barrels. Their No. 1 is producing six barrels. The Roice & Brundred No. 2 was completed a few days since and is estimated at seven barrels. The subjoined is a list of new operations as they were October 13th, 1883.

Tract.	Owner.	Depth.
Ohio Coal Co.'s lands, . . .	Laing, Geider & McDonald . . .	rig
Snyder,	Jaques, Laing & Co	150
W. Clark,	Mills & Mullin	600
J. B. Hall,	Bradley, Painter Bros. & Co . . .	drilling
Ruff,	M. B. McManus, No. 1	900
Ruff,	M. B. McManus, No. 2	300
Macksburg Suburbs, . . .	Decker, No. 3	100
Perkins,	Garvey	rig bldg
Warren,	Whitney & Clark	rig bldg
Smith,	Hulings	drilling
	Roice & Co	360

The foreign and metropolitan press have lately been flooded with bearish articles on the Russian field. There has been much said about Russian oil cutting in on the demand for American refined. The table of exports from the *Shipping List*, published elsewhere, shows that the countries along the Mediterranean easily accessible to the Russian field, have taken 5,026,502 gallons more oil up to October 13 this year than they did during the same time in 1882.

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SEPTEMBER OPERATIONS.

THE ENTIRE REGION,—WELLS COMPLETED, WELLS DRILLING, AND RIGS UP, AND BUILDING.

WELLS COMPLETED.

Allegheny Field.

Scio.

Owner.	Barrels.
Lot 1 Manhattan Oil Co, No 2	10
1 Lovell & Day, No 6	12
1 Lovell & Day, No 7	15
1 Rumsey & Lovell	10
1 Rumsey & Lovell	12
1 Rumsey & Lovell	10
1 Phillips & Sterns	8
1 Waco Oil Co, No 2	12
1 Waco Oil Co, No 3	10
1 Lattimer & Phillips, No 3	10
2 Farrel & Snyder, No 2	10
2 Farrel & Snyder, No 3	12
2 Farrel & Snyder, No 4	15
2 Ackerly & Barton, No 5	12
2 Long Time Oil Co, No 2	8
2 Masters & Co, No 1	10
2 Straight & Hostetter, No 14	10
2 Straight & Hostetter, Allen farm No 1	8
2 Straight & Hostetter, Allen farm No 2	8
2 Straight & Hostetter, Allen farm No 4	10
2 Nameless Oil Co, No 1	8
2 Young & Co, No 17	10
2 Young & Co, No 18	10
2 Coast & Co, No 18	15
2 Coast & Co, No 19	10
2 Coast & Co, No 22	12
2 Coast & Co, No 23	12
3 Baldwin & Co	8
4 Barton & Taylor	10
4 W L Hardison	8
4 R Carroll	10
Wells	32
Production	335

Alma.

Lot 2 Hazelwood Oil Co, No 22	6
2 Hazelwood Oil Co, No 23	5
2 Hazelwood Oil Co, No 24	5
2 Hazelwood Oil Co, No 25	5
2 Church & Whitcomb	8
3 Schonblom & Amm	8
3 Ellsworth & McMullen No 1	8
4 O P Taylor, No 1	8
4 Matson & Thompson	10
4 Richardson & Belknap	8
4 Thomas McEnroe	8
4 Fertig Bros	8
4 Whitnall & Lord	8
17 Wilson & Co	6
17 New Milford Oil Co	8
17 Carlin Bros & Co	10
17 Col Scott	8
17 Bronson & Co	8
18 Patty & Alshouse, No 5	10
18 Patty & Alshouse, No 6	10
18 Manhattan Oil Co	12
18 Manhattan Oil Co	10
18 Manhattan Oil Co	10
20 Masters & Co	9
20 I Willets	8
20 Willets & Duke, No 1	10
20 Willets & Duke, No 2	8
20 Straight & Hostetter, No 1	10
20 Straight & Hostetter, 2	12
21 Riter & Conley	8
21 Bennet & Co	10
21 M Finnigan	8
21 Cochran Bros No 4	8
21 Cochran Bros, No 5	5
21 Cochran Bros, No 6	15
24 Vance & Co No 2	10
24 Vance & Co No 3	10
24 W F Jones	12
24 Ackerly & Barton, No 1	12
24 Flannigan & Cheeseman	8
38 Taylor, Barton & Smith, No 6	15
39 Duke & Norton Oil Co, No 38	8
39 Duke & Norton Oil Co, No 40	8
40 Portland Oil Co	8
66 Dunham & Co	8
106 Howard, O'Connor & Sheasley	8
132 Canfield & Co	8
Wells	47
Production	413

Wirt.

Lot 1 Shirley & Hostetter	8
34 Wellman, & Miner	10
Wells	2
Production	18

Bolivar.

Owner.	Production.
Lot 6 Star Oil Co	8
6 Summit Oil Co	10
6 Pentzer Oil Co, No 4	10
6 Pentzer Oil Co, No 5	10
6 Pentzer Oil Co, No 6	8
6 A J Applebee	8
6 A J Applebee	10
7 W & J Duke, No 6	10
7 W & J Duke, No 7	10
7 W & J Duke, No 13	10
7 Coast Oil Co, No 6	12
7 Coast Oil Co, No 7	10
7 Coast Oil Co, No 13	10
7 Coast & Lego	8
7 Reed & Varney	10
8 Hopkins & Co, No 7	6
8 Hopkins & Co, No 9	6
8 Hazelwood Oil Co, No 6	5
15 A L Robertson	10
16 Warren, Gleason & Matson	6
18 Durkee & Weiser Bros	dry
23 Empire Gas Co	5
24 Koch Bros	8
24 C B Williams & Co	6
24 H M Ernst	6
30 Root & Garthwait	dry
30 Hogan & Basch	5
31 Conroy & Johnson, No 3	5
31 J H Hydrick	6
31 Riley Allen	10
31 Fisher Oil Co	8
31 Stewart & McDonnell	3
31 Fritts, Lowry & Wilson	6
31 D E Fritts	8
31 Smith, Miner & Wellman	3
32 Hazelwood Oil Co, No 22	10
45 Franchot & Forman	6
63 H F Northrup & Co	8
63 Columbia Oil Co	10
63 Columbia Oil Co	10
Wells	40
Production	300
Dry	2

Clarksville.

9 P T Kennedy No 1	9
9 P T Kennedy, No 2	9
9 P T Kennedy, No 3	8
9 P T Kennedy, No 6	8
9 Clark & Davis	5
10 E W Whipple	12
17 J C Smith & Son	6
17 Cuba Oil Co, No 10	10
17 McManus, No 5	8
18 Huston & Brett	10
33 Wellman Smith & Sawycr	dry
Wells	11
Production	85
Dry	1

Genesee.

Lot 6 Bradley Bros	5
6 Dow & Vincent	10
7 S H Merriman	8
7 S H Merriman	10
14 Chauncey Oil Co, No 12	dry
14 Chauncey Oil Co, No 19	12
14 Chauncey Oil Co, No 30	10
14 Chauncey Oil Co, No 4	10
14 Empire Gas Co	5
14 Empire Gas Co	5
14 Durkee, Clark & Co	8
14 Davis & Young	10
15 Moore Bros	18
15 McCalmont Oil Co	12
15 McCalmont Oil Co	10
15 McCalmont Oil Co	10
15 McCalmont Oil Co	8
15 A T Palmer	12
21 Smith	5
22 Willets Bros	5
23 Dean Oil Co	10
23 Dean Oil Co	8
23 Dean Oil Co	10
23 Coss Oil Co	10
30 McCalmont Oil Co	8
30 Rosana Wales	10
30 Duor & Roach	8
31 H L McMullen	10
31 Haldeman & Davis	8
Wells	29
Production	255
Dry	1

Bradford Field.

East and West Branches.

Tract.	Owner.	Barrels
Bingham, G H Van Vleck, No 21		15
Bingham, G H Van Vleck, No 22		15
Bingham, Lot 197, R J Straight, No 3		8
Bingham, Forest Oil Co, No 9		15
Bingham, Bayne, Fuller & Melvin		15
Tuna Valley (McKean farm) Logan		35
Fox, Barnsdall & Shafner		12
Dent, P C L & P Co, No 46		10
Dent, P C L & P Co, No 47		10
Dent, P C L & P Co, No 48		12

Tract.	Owner.	Production.
Minard Run Tract, Owners M R Tract No 100		12
Minard Run Tract, Owners M R Tract No 101		12
Minard Run Tract, Mc Kean Oil Co		5
Tibbetts, Emery Oil Co, No 14		10
Pike, Capt J T Jones, No 8		8
Hawkins, P C L & P Co, & P T Kennedy No 19		10
Freeman, Chapin & Co, No 9		8
Drake Estate, P M Fuller		10
Lewis Run, Whitney & Wheeler No 5		dry
Blair, John J Carter No 22		15
Blair, John J Carter, No 23		20

Quintuple.

Lot 43, Tarbell & Morris	10
176 Booth Bros, No 1	7
215, Kane City Oil Co	5
273, Richards & Co	8
277, Baker & McClure	10
Wells	26
Production	297
Dry	1

Kendall Creek.

Richardson, Munhall & Smithman	10
Youngs, P T & W C Kennedy, No 9	6
Clark, J D Clark, est	5
Moore, Westmoreland Oil Co, No 10	10
E T Co, Forest Oil Co, No 28	6
E T Co, Chapin & Co, No 11	10
Sill, McCray Bros, No 3	8
Sill, Howe & Co, No 9	7
Duke, Duke & Dmm	8
Duke, Randall & Randall	10
Buchanan, P O Buchanan, est	8
Wells	11
Production	88

Foster Brook.

E T Co, H L Blackmarr, No 5	15
E T Co, F L Blackmarr & Post	15
Willets, I Willets, No 25	25
Bradley, Hazelwood Oil Co, No 52	6
Bradley, Hazelwood Oil Co, No 53	6
C B & H, Watson Oil Co, No 23	10
B R & Co Pur, Baum, Richardson & Co, No 17 est	10
Wells	7
Production	87

Four Mile.

Van Campen, Geo Van Campen	12
Van Campen, Merrill & Perrin	10
Volkel, Franchot Bros, No 3	12
Geiger, Jacob Geiger	2
Johnson, J B Hay	10
Lippert, Griffin, No 12	10
Waters, G N Moore, No 4	10
Widow Carroll, D W Ward	10
Wells	8
Production	76

Indian Creek.

Pine Lot, R G Bailly, No 5	10
Campbell, R G Bailly, No 10	8
Loup, Hazelwood Oil Co, No 36	8
Loup, Hazelwood Oil Co, No 37	8
Barse, U O Co (G V Forman Agt) No 28	15
Barse, Stover & Dilks, No 9	10
Cooper, Forest Oil Co, No 2	5
Cooper, Forest Oil Co, No 3	5
Simms, Bradford Oil Co, No 26	10
Simms, Bradford Oil Co, No 29	10
Simms, Bradford Oil Co, No 40	10
Campbell, Bligh & Waugh	10
North Branch, J D Downing & Co, No 22	10
North Branch, J D Downing & Co, No 32	10
North Branch, J D Downing & Co, No 34	10
North Branch, J D Downing & Co, No 35	10
Shattuck, Emery Oil Co, No 5	4
Meek's Creek (W & M lands) J L McKinney & Co, No 2	2
Meek's Creek (W & M lands) Gailey Bros, No 48	15
Meek's Creek (W & M lands) Gailey Bros, No 49	15
Wells	20
Production	185

Cole Creek.

Bingham, Forest Oil Co, No 25	15
Bingham, lot 477, McKean Oil Co, No 42	10
Bingham, lot 369, W W Thompson	10
Bingham, Union Oil Co & Forman No 8	30
Bingham, Union Oil Co, No 17	30
Bingham, Union Oil Co, No 18	30
Wells	6
Production	125

Kinzua.

3077, Union Oil Co, No 45	20
Sugar Run, Chapin & Co	5
Sullivan, J M Tait, No 6	12
Bingham, Cornwall, Parker & Hasson	15

<i>Kinzua Village.</i>			Tract. Owner. Production.			Farm. Operator. Depth.		
Tract.	Owner.	Production.	Rhodes, Roess Bros		8	4 Matson & Thompson		1000
Falconer, J H Markham		10	Finchbaugh, Cratty		dry	4 Matson & Thompson		600
Campbell, Porter & Conley		10	Finchbaugh, Dale Bros		dry	4 Matson & Thompson,		rig
Campbell, Bradford Oil Co		8	Finchbaugh, Wesley Chambers		dry	4 Fertig Bros, No 3		drilling
Wells		7	Haslett, L Milton		6	17 Wilson & Co		250
Production		80	Wilt, Williams & Son		dry	17 Manning Bros		1000
			McBride, O D Harrington		3	17 Patty & Alshouse, No 7		600
			McBride, Wesley Chambers		3	17 Patty & Alshouse, No 8		rig
Warren and Forest.			<i>Vicinity Emlenton.</i>			17 Carlin Bros & Co, No 3		drilling
<i>Glade.</i>			Calvert, J S Young & Co		5	17 Carlin Bros & Co, No 4		rig
Tract.	Owner.	Production.	McGinnis, J A Crawford		5	17 New Milford Oil Co		drilling
Rankin, McWilliams & Co		5	Grass Flats, Smith		dry	17 Thornton		750
Knupp, Union Oil Co		dry	Wells		14	18 Manhattan Oil Co		300
Leonhart, Beatty		4	Production		41	18 Manhattan Oil Co		300
Hemlock, W Reed, est		50	Dry		5	18 Manhattan Oil Co		rig
Wardwell, Rhodes & Co No 1		8	<i>Clarion.</i>			18 G M Barney		drilling
Wardwell, Pratt & Co		8	Keating, Smith & Co		2	20 Masters & Co		drilling
Wardwell, K H McBride, No 2		5	Moyer, B Moyer		dry	20 Willets & Lovell		400
Mistral, Steelesmith & Co		dry	Whiting, Whiting		2	20 Willets & Lovell (old)		rig
Pleasant, Iron City Oil Co		dry	Baker, John Irving		5	20 Straight & Hostetter, No 3		800
Wells		9	Wells		4	20 Straight & Hostetter, No 4		600
Production		80	Production		9	20 Straight & Hostetter, No 5		rig
Dry		3	Dry		1	21 Riter & Conley		rig
			<i>Butler and Armstrong.</i>			21 Bennett & Co (fishing)		500
<i>Clarendon.</i>			Reiber & Co, Bald Ridge Oil Co		10	21 M Finnigan		1000
Lot 25 Ackerly & Co		4	Wallace, Sheidemantle		25	21 M Finnigan		rig
55, W Beatty		15	Wallace, I F Agnew		75	21 Cochran Bros		600
464, J Smith & Son, No 6		15	Dorsey Heirs, I F Agnew		10	21 Cochran Bros		350
465, W Benedict, No 6		7	Hoffmann, Showalter Bros & Co		dry	21 Cochran Bros		rig
465, W Benedict, No 7		10	Vosbrink, Showalter Bros & Co		20	23 Dow & Browning		drilling
465, South Shore Oil Co, No 9		10	Vosbrink, Showalter Bros & Co		7	23 Dow & Browning		rig
467, Wade Oil Co		3	Morrow, Westernman & Co		5	24 Vance & Co		600
497, Nutting		5	Pontius, Hunter & Cummings		dry	24 Vance & Co		400
498, Ed McDermott		6	Darnell, Grant Bros		5	24 Vance & Co		rig
527, Tannery Oil Co		8	Wells		10	24 Koch Bros		600
527, Book & Rhodes, No 2		5	Production		157	24 Koch Bros		rig
530, Whitehall & Co		5	Dry		2	24 W F Jones, No 5 (old)		rig
550, Story & Adams		5	DRILLING WELLS, RIGS UP AND BUILDING.			24 Barton & Ackerly, No 2 (old)		rig
Wells		13	Allegany Field.			24 Flannigan & Cheeseman (old)		rig
Production		98	<i>Scio.</i>			28 Harding & Derrickson		400
Dry			Owner.			38 Taylor, Barton & Ackerly (old)		rig
			Lot 1 Manhattan Oil Co, No 3		200	38 Taylor, Barton & Ackerly, No 3, rig bldg		
<i>Tiona.</i>			1 Manhattan Oil Co, No 4		100	40 Duke & Norton Oil Co, No 41 (old)		rig
160, J S Patterson, No 1		5	1 Lovell & Rumsey, No 4		1000	40 Portland Oil Co, (old)		rig
160, J S Patterson, No 2		8	1 Lovell & Rumsey, No 5 (old)		rig	54 F M Leasure		rig
109, Short Oil Co		5	1 Lovell & Rumsey, No 6 (old)		rig	66 Dunham & Co		drilling
159, Clark & Foster, No 10		10	1 Lovell & Rumsey, No 7		800	73 Willets		drilling
159, Clark & Foster, No 11		10	1 Lovell & Rumsey, No 8		900	122 Wm Steele		sand
160, R H Thayer, No 5		3	1 Lee & Apple, No 2		400	100 Mosher & Reddy Bros		drilling
160, R H Thayer, No 6		3	1 Lee & Apple, No 3		rig	138 Sanger & Co		1000
165, Pagett & Co, No 7		10	1 Willets & Duke, No 1		350	140 Anderson & Rauber		200
166, Fertig & Henne		10	2 Waco Oil Co, No 4		rig	142 Canfield & Co		300
204, E O Emerson		5	2 Waco Oil Co, No 5		rig bldg	142 Canfield & Co		rig
438, I L Shank, No 6		10	2 Riley Allen		600	142 Crandall & Parker		1000
Wells		11	2 Stewart & McDonnell		drilling	New rigs		22
Production		79	2 S E Young & Co, No 19		1000	Old rigs		6
			2 S E Young & Co, No 20		750	Wells drilling		37
<i>Cooper.</i>			2 S & Young & Co, No 21		500	Total		65
3198, M W S & Co & U O Co No 21		58	2 Straight & Hostetter, No 15		250	<i>Wirt.</i>		
3198, M W S & Co & U O Co No 22		50	2 Straight & Hostetter, Allen farm		600	Lot 17 Riley Allen		800
Henry Lands, Syndicate, No 7		124	2 Straight & Hostetter, Allen farm		450	17 Riley Allen		rig
Henry Lands, Syndicate, No 8		227	2 Straight & Hostetter, Allen farm		rig	34 Wellman, Miner & Fuller, No 13		1000
Henry Lands, McCalmont Oil Co No 4		dry	2 Coast Oil Co, No 26		700	34 Wellman, Miner & Fuller, No 14, rig bldg		
Henry Lands, McCalmont Oil Co, No 9		dry	2 Coast Oil Co, No 21		250	34 Smith & King (old)		rig
Henry Lands, McCalmont Oil Co, No 11			2 Coast Oil Co, No 9, fishing		1000	41 Smith & Bartlett		300
(second sand) est		200	2 Coast Oil Co, No 24 (old)		rig	41 Dykeman & Co		100
Henry Lands, Lot 1 Anchor Oil Co No 31			2 Coast Oil Co, No 25 (old)		rig	41 Riley Allen & Co (old)		rig
est		100	2 Coast Oil Co, No 27		rig	41 Gardner		200
3198, Clark, Foster & Murphy, No 3		30	2 Farrell & Snyder		400	42 M C Mulkin		rig
Herrick, Union Oil Co, No 9		70	2 John O Shea		drilling	50 Empire Gas Co		rig
Herrick, Union Oil Co, No 10		45	3 Frank Campbell, No 1		1000	57 A J Thompson		rig
Blue Jay, Story & Adams, No 1		dry	3 Frank Campbell		rig bldg	48 Nile Oil Co		rig
Henry Lands, H B Porter, No 3 est		15	4 Henry Stewart		drilling	New Rigs		6
Wells		13	4 O P Taylor (old)		rig	Old rigs		2
Production		919	11 Greenlee & Anderson		850	Wells drilling		5
Dry		3	11 R Carroll		drilling	Total		13
			11 R Carroll		rig	<i>Bolivar.</i>		
<i>Balltown.</i>			12 Ackerly & Barton, No 6 (old)		rig	Lot 4 Carlin & Buzzell		drilling
5236, May, Kelly & Grandin, No 13		33	47 The Union Oil Co, fishing		sand	6 Penzer Oil Co, No 7		drilling
5236, May, Kelly & Grandin, No 14		110	New rigs		7	6 Stewart & McDonnell		drilling
5236, May, Kelly & Grandin, No 15		394	Old rigs		6	6 Stewart & McDonnell		rig
5236, James Welch & Co, No 4		dry	Wells drilling		26	6 Star Oil Co		rig
4821, Balltown Oil Co, No 11		210	Total		39	6 M L Mulkin		rig
4821, Balltown Oil Co, No 13		249	<i>Alma.</i>			6 Baldwin, Weeter & McCoy		drilling
4792, Howe Oil Co, No 5		560	Lot 2 Hazelwood Oil Co		300	7 J D Downing & Co		800
4792, Howe Oil Co, No 7		118	2 Church & Whitcomb		500	7 J D Downing & Co		200
3133, Galey & Murphy, No 3		83	3 Fritts & Collins		rig bldg	7 W & J Duke, No 8		600
3194, Porcupine Oil Co, No 5		101	4 O P Taylor		rig bldg	7 W & J Duke, No 9		200
3194, Porcupine Oil Co, No 10		167	4 Carlin & Bussell		500	7 W & J Duke		rig
3194, Porcupine Oil Co, No 11		191	4 Crane & Odell		rig	7 Coast Oil Co		600
718, Briody & Barnsdall, No 1		dry	4 Richardson & Co		400	7 Coast Oil Co		400
Wells		13	4 Richardson & Co		rig	7 Coast Oil Co		100
Production		2216	Lower Country.			7 Coast Oil Co		rig
Dry		2	<i>Venango.</i>			7 Coast & Lego		700
			Tract.	Owner.	Barrels.	7 Coast & Lego		rig
McClure, Fisher		2	McClure, Fisher		2	7 A J Applebee		400
Gormley, Richardson & Co		5	Gormley, Richardson & Co		5	7 A J Applebee		rig
Brannon, Wolf & Kugler		4	Brannon, Wolf & Kugler		4	7 A J Applebee		rig bldg

Farm.	Operator.	Depth.
7 A A Hopkins & Co, No 15	rig hldg	
8 Hazelwood Oil Co, No 7	drilling	
8 Hazelwood Oil Co, No 8	1200	
8 Hazelwood Oil Co	rig	
15 Wellman, Smith & Co	500	
15 Wellman, Smith & Co	rig	
23 Riley Allen & Co	rig bldg	
24 H M Ernst	800	
24 H M Ernst	rig	
24 C B Williams & Co	1000	
24 C B Williams & Co	rig	
24 Fay & Co	rig	
30 Hogan & Basch	rig bldg	
31 Johnson & Conroy	rig	
31 Empire Gas Co	sand	
31 Fisher Oil Co	1000	
31 Fisher Oil Co	rig	
31 Fisher Oil Co	rig	
31 J H Hydrick (old)	rig	
31 D E Fritts	drilling	
31 D E Fritts (old)	rig	
31 Wellman, Smith & Co	rig	
31 Wellman, Smith & Co	rig	
34 P Parker	600	
34 P Parker (old)	rig	
38 Hanley & Oshea, No 13	drilling	
38 Hanley & Oshea, No 14, old	rig	
45 Crocker & Ryan	1000	
63 H F Northrup & Co	rig	
63 Columbia Oil Co	600	
63 Columbia Oil Co	200	
New rigs	25	
Old rigs	3	
Wells drilling	28	
Total	56	

Clarksville.

Lot 9 McManus	600
9 P T Kennedy	200
9 P T Kennedy	2 rigs
17 Clark & Davis, No 13	drilling
17 Clark & Davis, No 14	rig
17 Smith & Son	rig bldg
17 Henry Werthman	drilling
17 Ege Oil Co	1000
17 W P McCleary	rig
35 Wellman, Miner & Smith, old	rig
New rigs	5
Old rigs	1
Drilling	5
Total	11

Genesee.

Lot 6 Dow & Vincent	200
7 S H Merriman	300
7 S H Merriman	400
7 Ackery & Barton (old)	rig
8 I Willets, No 44	500
8 I Willets, No 45	200
8 I Willets	drilling
8 I Willets	rig
8 I Willets	rig
14 Chauncey Oil Co	drilling
14 Chauncey O Co	rig
14 Brown & Armstrong	300
14 Davis & Young	800
14 Davis & Young	rig
14 J B Bradley	500
14 J B Bradley	200
14 J B Bradley	rig bldg
14 Empire Gas Co, old	rig
15 McCalmont Oil Co	rig
15 McCalmont Oil Co	600
15 McCalmont Oil Co	800
22 I Willets	300
22 I Willets	drilling
22 I Willets	5 rigs
23 Hughes & Coughlin	drilling
23 Hughes & Coughlin	rig
23 Dean Oil Co	500
23 Dean Oil Co	600
23 Coss Oil Co	600
23 Coss Oil Co	rig bldg
29 Wm Crauston (old)	rig
29 Miner, Wellman & Dean	drilling
30 McCalmont Oil Co	drilling
31 H L McMullen	700
31 H L McMullen (old)	2 rigs
31 H L McMullen	rig
31 Haldeman & Davis	rig
32 Childs & Munhall	rig
New rigs	17
Old rigs	4
Drilling	22
Total	43

Bradford Field.

East and West Branches.

Farm.	Operator.	Depth.
Bingham, G H Van Vleck, No 23	drilling	
Bingham, Lot 168, R J Straight	rig	
Bingham, Forest Oil Co, No 10	400	
Bingham, Forest Oil Co, No 11	rig bldg	
Bingham, Bayne, Fuller & Melvin, No 57	600	

Farm.	Operator.	Depth.
Bingham, Bayne, Fuller & Melvin, No 58	drilling	50
Fox, Barnsdall & Shafier	200	
Fox, Barnsdall & Co, No 2	200	
Fox, Barnsdall & Co, No 3	rig	
Fox, Roth	2 rigs	
Fox, Caldwell, Hamsher & Co	1350	
Dent, P C L & P Co, No 49	1300	
Dent, P C L & P Co, No 50	900	
Dent, P C L & P Co, No 51	50	
Dent, Whitney & Wheeler, No 30	1500	
Dent, Whitney & Wheeler, No 31	rig	
Dent, Goettel Bros, No 21	100	
Watrous, McCray Bros, No 11	500	
Brown, J B Jennings	rig bldg	
Hawkins, P C L & P Co, & P T Kennedy	sand	
Hawkins, P C L & P Co, & P T Kennedy, No 21	rig bldg	
Hawkins, Union Oil Co, No 12	600	
Freeman, Leopold	500	
Smith, P T Kennedy, No 10	600	
Beckwith, Beardsley (old)	rig	
Craft, Roy & Archer (old) No 8	rig	
Craft, Roy & Archer, No 7	100	
Nile, Bradford Oil Co (old)	rig	
Reed, Bradford Oil Co (old)	2 rigs	
Taylor, Atlas Oil Co, No 4	800	
Taylor, Atlas Oil Co, No 5	rig bldg	
Terry (Tuna Valley), P C L & P Co	200	
Rutherford, Bradford Oil Co, No 25	400	
Rutherford, Bradford Oil Co, No 26	rig	
Rutherford, H Jayne	2 rigs bldg	
King, Barnsdall	rig	
King, Hall & Co	200	
Fuller, American Oil Co, No 19	200	
Fuller, American Oil Co, No 20	rig	
Fuller, American Oil Co, No 21	rig	
Kissam, Beach, Atwater & Co No 2	900	
Kingsbury, Camp & Zane	100	
Mack, Butts & Co	rig	
Wilson, West Branch Oil Co, No 11	rig	

Quintuple.

Lot 25, E Strong & Co, No 2 (old)	rig
44, J W Humphrey (old)	rig
50, B F Brinton	100
137, Campbell & Vounkins, No 4	200
147, Hamsher & Co	1000
175, Atwater & Co (old)	rig
176, Booth	200
187, Jennings & Co	400
188 Jennings & Cummings	rig
260, E T Howes (old)	rig
286, J B Jennings	rig bldg
New rigs	19
Old rigs	9
Drilling	29
Total	57

Kendall Creek.

Berger, P T & W C Kennedy, No 4	600
Moore, Westmoreland Oil Co, No 11	rig bldg
Moore, Turner & Co	drilling
Buchanan, McCray Bros & Co, No 6	rig
E T Co, Chapin & Co, No 12	rig
Turner, W D Jayne	rig
Sill, McCray Bros No 4 (old)	rig
Sill, Howe & Co, No 10	rig
Schoonover, Amm, Seep Co, No 8	700
Irons, D P Carter	400
Dennis, Shear Bros	rig bldg
Duke, Suhr & Shopperlee	400
Duke, Suhr & Shopperlee	rig bldg
Duke, Duke & Dunn	50
Moore, A S Palmer, No 7	rig bldg
New rigs	8
Old rigs	1
Drilling	6
Total	15

Foster Brook.

E T Co, H L Blackmarr, No 6	300
E T Co, H L Blackmarr, No 7	rig bldg
E T Co, F W Mitchell, No 7	1600
E T Co, F W Mitchell, No 8	rig
E T Co, F L Blackmarr & Post	2 rigs
Willets, I Willets, No 26 (old)	rig
Willets, Young & Willets	200
Willets, Young & Willets	rig
Willets, Willets, Young & Co, No 13	rig bldg
Angell Oil Co, Josett Bros, No 4	200
Angell Oil Co, Jas Smith (old)	rig
C B & H Vandergrift & Miller No 4 (old)	rig
C B & H, Watson Oil Co, No 24	250
C B & H, Crippen & Kittenger	drilling
C B & H, Coldren & Wolf, No 10	700
C B & H, Chauncey Sharp	drilling
New rigs	6
Old rigs	3
Drilling	8
Total	17

Four Mile.

Van Campen, Geo Van Campen	rig
Van Campen, Merrill & Perrin	rig

Farm.	Operator.	Depth.
Van Campen, Jones & Nelson	1300	
Van Campen, Jones & Nelson	rig	
Van Campen, William Doe	600	
Johnson, Bussell & Co, No 5	500	
Volkel, Franchot Bros, No 4	rig	
Volkel, Franchot Bros, No 5	rig bldg	
R Moultrous, John Coast	sand	
R Moultrous, John Coast (old)	rig	
Stevens, Stevens	rig	
Stevens, J H Hughes	700	
Waters, Moore & Coast	rig	
Waters, Carroll Bros	sand	
Sparger, Wyant & Chamberlain	drilling	
Davis, Weiser & Durkee	sand	
Two Mile, Waco Oil Co	rig	
Widow Carroll, C J Hickey	rig bldg	
Widow Carroll, T Kevin	rig bldg	
Jake Waters, Howard	rig bldg	
J Carroll, Carroll	250	
New rigs	11	
Old rigs	1	
Drilling	9	
Total	21	

Indian Creek.

Henry Loup, White & Levens	100
Pine Lot, Reid & Brown, No 3	1100
Pine Lot, R G Baily, No 6	800
Pine Lot, R G Baily, No 7	400
Pine Lot, R G Baily, No 8	rig bldg
Shattuck, Emery Oil Co, No 6	rig bldg
Meek's Creek (W & M lands) J L McKimney & Co, No 3 (old)	rig
Meek's Creek, Gailey Bros & Co, No 50	100
Lot 3 (Weston & M S S Ramsey)	rig
Indian Creek, Suhr & Justus	1300
Indian Creek, Suhr & Justus	rig
Loup, Hazelwood Oil Co, No 38	drilling
Loup, Hazelwood Oil Co, No 39	drilling
Loup, Hazelwood Oil Co, No 40	rig
Loup, Hazelwood Oil Co, No 41	rig
Loup, Hazelwood Oil Co, No 42	rig
Dodge, Shear Bros, No 2	800
Dodge, Shear Bros, No 3	rig
Barse, U O Co, Forman, agt, No 29	500
Campbell, Forest Oil Co, No 5	600
Cooper, Forest Oil Co, No 4	rig bldg
Simms, Bradford Oil Co, No 27	100
Simms, Bradford Oil Co, No 28	rig
Simms, Bradford Oil Co, No 30	sand
Simms, Bradford Oil Co, No 37	600
Simms, Bradford Oil Co, No 38	rig
Simms, Bradford Oil Co, No 42	600
Campbell, Bligh & Waugh	rig bldg
Hamlin, Curtis & Davis	rig bldg
North Branch, J D Downing, No 26	sand
North Branch, J D Downing, No 30	900
North Branch, J D Downing, No 31	1100
North Branch, J D Downing, No 33	100
North Branch, J D Downing, No 37	150
North Branch, J D Downing, No 38	rig
North Branch, J D Downing, No 39	rig
North Branch, J D Downing, No 40	rig
North Branch, J D Downing, No 41	rig bldg
North Branch, J D Downing, No 42	rig bldg
Winchell, Morse	rig bldg
New rigs	19
Old rigs	1
Drilling	20
Total	40

Cole Creek.

Bingham, Forest Oil Co, No 26	100
Rew, Capt E Frawley (old)	rig
Bingham, McKean Oil Co, No 43	600
Bingham, McKean Oil Co, No 44	rig
Bingham, Johnson & Co, No 118	1800
Bingham, Johnson & Co, No 120	rig bldg
Bingham, Union Oil Co	2 drilling
Bingham, Union Oil Co	rig bldg
New rigs	3
Old rigs	1
Drilling	5
Total	9

Kinza.

3077, Union Oil Co, No 46	400
3077, Union Oil Co, No 47	400
3077, Union Oil Co, No 48	rig
3077, Union Oil Co, No 44	rig bldg
179 Bingham, P T & W C Kennedy	rig bldg
Bingham, H P Malone, No 21	rig bldg

Kinza Village.

Dew Drop, Mumford & McElrea	rig
Anderson, Eaton & Bundy (old)	rig
Archibald, Brown & Co	drilling
Falconer, J H Markham, No 2 (old)	rig
Campbell, Porter & Conley	600
Campbell, Porter & Conley	rig
Campbell, Bradford Oil Co	rig
Campbell, Bradford Oil Co	rig bldg

Farm. Operator. Depth.			Farm. Operator. Depth.			Lower Country.		
Hoffman, Beardsley & Co 500			160, Hill & Co 400			Venango.		
Sugar Run (Warrant 3710), R R Armor & Co 700			160, Helm & Mealey 500			Tract. Operator. Depth.		
New rigs 8			160, Helm & Mealey rig			Fish, Warner 100		
Old rigs 2			165, Pagett & Co, No 8 50			Boyle, Roess Bros 300		
Drilling 6			166, Fertig & Henne, No 13 1000			McCurry, Redfield & Co. 900		
Total 16			166, Fertig & Henne, No 14 rig			Boyer, Wolf & Kugler 100		
Warren and Forest.			166, Hill & Co 50			Ten Mile Bottom, Canning & Co. . . . drilling		
Glade and other Towns.			200, W Ballard, No 5 sand			Allison, Fisher 100		
Farm. Operator. Depth.			205, Adams, O'Donnell & Co sand			Gormley, Richardson & Co. rig		
Wardwell reserve, Rhodes & Co, No 2 . . . 250			205, Halleck & Johnson, No 6 150			Hughes, Fisher Bros rig		
Wardwell reserve, K H McBride, No 2 . . . 600			205, Halleck & Johnson, No 7 rig bldg			Gormley, Judd & Co. rig		
Island Verback, No 1 sand			313, Vandergrift, Murphy & Co drilling			Echols, Richardson & Co. rig		
Island, C W Verback, No 2 rig			398, (Sheffield) Gaily & Co drilling			Hughes, Richardson & Co. rig		
Shippen, Kuhn & Weible rig			Forest County, 5214, Mallory & Co rig			Miner, Fisher Bros (old) rig		
Pleasant Twp, Calhoun & Co rig			438, I L Shank rig bldg			Vicinity Emlenton.		
Stillson Hill, Murphy, McGhee & Co . . . rig bldg			Rigs 9			Porterfield, R Porterfield rig		
Branch, Rhodes & Co, No 2 rig			Drilling 15			Porterfield, McCombs & Porterfield . . 300		
Rankin, Joe McWilliams rig			Total 24			Crawford, E Crawford 300		
Sutter, P M Smith 500			Cooper District.			King, King rig		
Woald, Johnson & Co 100			Herrick, Union Oil Co, No 11 rig bldg			Fox, Martin 300		
Leonhart, W Beattie rig bldg			E T Co, (south Cooper) Fertig & Henne No 3 800			Creese Lot, Creese 50		
Scofield, A H Daniels, No 4 sand			E T Co, (east Cooper) Fertig & Henne No 4 1330			Gibson, Hamilton rig		
Scofield, A H Daniels, No 5 rig			Cooper District, Anchor Oil Co, No 8 . . . 100			Church, Mackin rig		
Clark, O Hoffman sand			Cooper District, Anchor Oil Co, No 10 (old) rig			Haggerty, Haggerty 300		
Clark, S S Fertig 200			Cooper District, Anchor Oil Co, No 21 . . . rig			Heater, McFarlin 900		
Rigs up and building 8			Cooper District, Anchor Oil Co, No 22 . . . 1000			Davis, Hays & Short 1000		
Wells drilling 8			Cooper District, Anchor Oil Co, No 30 (old) rig			Jamison, Jamison 1000		
Total 16			Cooper District, Anchor Oil Co, No 32 (old) rig			Black, D Burns 200		
Clarendon.			Cooper District, Anchor Oil Co, No 32 (old) rig			New rigs 8		
Lot 35, J Smith & Son 100			Henry Lands, Syndicate, No 5 400			Old rigs 1		
55, Beatty 500			Henry Lands, Syndicate, No 10 175			Drilling 15		
55, Beatty rig			Henry Lands, McCalmont Oil Co, No 7 . . . sand			Total 24		
55, Union Oil Co, (old) rig			Henry Lands, McCalmont Oil Co, No 12 . . . rig			Clarion.		
79, Adams & Story 500			Henry Lands, McCalmont Oil Co, No 13 . . . rig			J Sherry, Wesley Chambers 400		
80, Adams, O'Donnell & Co 100			Henry Lands, McCalmont Oil Co, No 14 . . . rig bldg			Updergraff, Frank Jeanerett 350		
106, Lapham & Co, No 11 sand			Cooper Tract, M W S & Co & U O Co No 23 1100			Hearse, Jacob Hahn drilling		
162, J T Beatty 400			Cooper Tract, M W S & Co & U O Co, No 24 rig			B Moyer, Smith & Turner 250		
162, Shugart & Co 500			Cooper Tract, M W S & Co & U O Co, No 25 rig			Casper, Philip Casper rig		
463, Schermerhorn & Co 500			3198, Clark, Foster & Murphy, No 4 . . . 400			Fillman, J Fillman (fishing) 1100		
464, John C Smith & Son No 6 500			Henry Lands, H B Porter & Co, No 7 . . . rig bldg			Rigs 1		
465, Benedict, No 8 200			3198, Wray (old) rig			Wells drilling 5		
465, Benedict, No 9 75			Fox, Fox & Co (old) rig			Total 6		
465, Benedict, No 10 rig			New rigs 8			Butler and Armstrong.		
494, Chas Vrooman 200			Old rigs 5			Renfrew, Forest Oil Co 1000		
498, Pratt & Co, No 7 100			Drilling 9			Reiber, Bald Ridge Oil Co 50		
498, Pratt & Co, No 8 900			Total 22			Husselton, Bald Ridge Oil Co 100		
498, Pratt & Co, No 9 rig			Balltown.			Heckert, Bald Ridge Oil Co (old) rig		
498, S W Harley 300			5236, May, Kelley & Grandin, No 16 . . . 675			Weber, P Schmick 1000		
498, Mooney & Griffin 700			5236, May, Kelley & Grandin, No 17 . . . 200			Wallace, Phillips Bros 100		
527, Tannery Oil Co rig			5236, May, Kelley & Grandin, No 18 . . . rig bldg			Wallace, Sheidemantle 100		
527, Book & Rhodes, 1000			5236, May, Kelley & Grandin, No 19 . . . rig			Wallace, Sheidemantle, (old) rig		
529, Connors & Co 900			5236, James Welch & Co, No 5 rig bldg			Black, Rabbitt 1300		
526, Story & Adams 900			3133, Gailey & Murphy, No 4 rig			McKeeever, Gage & Co 200		
530, Goal & Co sand			3133, J A Garltan rig			B B Campbell, Dennison & Hoyt 400		
530, Goal & Co rig			4821, Balltown Oil Co, No 8 (old) rig			Milligan, Showalter Bros & Hartman, (old) rig		
550, Story & Adams 200			4821, Balltown Oil Co, No 12 1600			Bresleau, Hock Bros & Co. 1300		
557, McDonald sand			4821, Balltown Oil Co, No 14 500			Greece City, Unknown rig		
557, Guffey & Gailey 200			4821, Balltown Oil Co, No 15 rig bldg			Kaltenbach, Forest Oil Co. 800		
561, Rockwell & Co 100			4792, Howe Oil Co, No 8 100			Jackson, Col Jackson 900		
New rigs 5			4792, Howe Oil Co, No 10 1200			Seybert, Timberlin & Co 500		
Old rigs 1			4792, Howe Oil Co, No 11 800			Mary Steele, J C Widger 1350		
Drilling 24			4792, Howe Oil Co, No 13 600			Mary Steele, Seybert Bros rig		
Total 30			4792, Howe Oil Co, No 14 100			Blumiller, L M Hale rig		
Tiona.			4792, Howe Oil Co, No 12 rig			Grant, Wilson Bros rig		
100, Kervin & Co, No 4 300			3194, Porcupine Oil Co, No 12 660			Dorkins, J H Coe & Co rig		
158, T C Joy 400			731, Miller, Odell & Co 1000			Rickett, D Burns 100		
159, Clark & Foster, No 12 200			744, Duke & Harris 1150			A Tompson, H H Hyland rig		
159, Clark & Foster, No 13 200			4823, Dutch Oil Co, No 4 rig			Byers, Zittle & Co rig		
159, Clark & Foster, No 14 rig			New rigs 8			New rigs 7		
159, Clark & Foster, No 15 rig			Old rigs 1			Old rigs 3		
159, Clark & Foster, No 16 rig bldg			Drilling 12			Drilling 15		
160, J S Patterson, No 3 rig			Total 21			Total 25		
160, J S Patterson, No 5 rig								

FIELD OPERATIONS SUMMARIZED.

Wells Completed, With the Estimated Production on the Last Day of the Month.

ALLEGANY.			AUGUST.			SEPTEMBER.		
Division of Field.	Wells.	Prod'n.	Dry.	Wells.	Prod'n.	Dry.	Wells.	Prod'n.
Scio	34	472	3	32	335	.		
Alma	29	286	1	47	493	.		
Wirt	4	36	.	2	18	.		
Bolivar	34	258	3	40	300	2		
Clarksville	2	20	.	11	85	1		
Genesee	25	280	.	29	255	1		
Total	128	1352	7	161	1396	4		

BRADFORD FIELD.

AUGUST.			SEPTEMBER.		
Division of Field.	Wells.	Prod'n.	Dry.	Wells.	Prod'n.
E. & W. Branches	26	305	.	26	287
Kendall Creek	15	165	.	11	88
Foster Brook	12	121	.	7	87
Four Mile	7	62	.	8	76
Indian & Meeks Cr'k	28	282	1	20	185
Cole Creek	5	110	.	6	125
Kinzua	5	63	.	7	80
Total	98	1108	1	85	928

WARREN AND FOREST.

<i>District</i>	AUGUST.			SEPTEMBER.		
	<i>Wells.</i>	<i>Prod'n.</i>	<i>Dry.</i>	<i>Wells.</i>	<i>Prod'n.</i>	<i>Dry.</i>
Glade	7	25	3	9	80	3
Clarendon	14	77	1	13	98	.
Tiona	11	68	.	11	79	.
Cooper	15	774	3	14	919	3
Balltown	12	1387	2	13	2216	2
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
Total	59	2331	9	60	3392	8

LOWER COUNTRY.

District	AUGUST.			SEPTEMBER.		
	Wells.	Prod'n.	Dry.	Wells.	Prod'n.	Dry.
Venango	14	61	6	14	41	5
Clarion	5	14	2	4	9	1
Butler and Armstrong	12	146	2	10	157	2
Total	31	221	10	28	207	8

GRAND SUMMARY.

District.	AUGUST.			SEPTEMBER.		
	Wells.	Prod'n.	Dry.	Wells.	Prod'n.	Dry.
Allegheny	128	1352	7	161	1396	4
Bradford	98	1108	1	85	928	1
Warren and Forest .	59	2331	9	60	3392	8
Lower Field	31	221	10	28	207	8
Total	316	5012	27	334	5923	21
July Total				316	5012	27
Difference				18	911	6

Rigs Up and Building.—Wells Drilling.

ALLEGANY FIELD.

Division of Field	SEPT. 1, 1883.			OCT. 1, 1883.		
	Rigs.	Drilling.	Total.	New Rigs	Old Rigs.	Drilling.
Scio	21	36	57	7	6	26
Alma	31	41	72	22	6	37
Wirt	3	2	5	6	2	5
Bolivar	31	35	66	25	3	28
Clarksville	7	8	15	5	1	5
Genesee	27	22	49	17	4	22
Miscellaneous						
Total	120	144	264	82	22	123

BRADFORD FIELD.

Division of Field.	SEPT. 1, 1883.			OCT. 1, 1883.		
	Rigs.	Drilling.	Total.	New Rigs	Old Rigs.	Drilling.
E. & W. Branches .	31	23	54	19	9	29
Kendall Creek . . .	6	7	13	5	1	6
Foster Brook . . .	13	8	21	6	3	9
Four Mile	12	9	21	11	1	9
Indian Creek . . .	17	16	33	19	1	20
Cole Creek	4	4	8	3	1	5
Kinzua	9	9	18	2	6	8
Miscellaneous						
Total	92	76	168	74	18	83

WARREN AND FOREST.

Division of Field.	SEPT. 1, 1883.			OCT. 1, 1883.		
	Rigs.	Drilling.	Total.	New Rigs	Old Rigs.	Drilling.
Glade	9	14	23	8		8
Clarendon	8	23	31	5	1	24
Tiona	2	12	14			15
Cooper	12	12	24	5	9	22
Balltown	8	16	24	8	1	12
Total	39	77	116	38	7	68

LOWER COUNTRY.

Division of Field.	SEPT. 1, 1883.			OCT. 1, 1883.		
	Rigs.	Drilling.	Total.	New Rigs	Old Rigs.	Drilling.
Venango	6	9	15	8	1	15
Clarion	2	7	9	1		5
Butler & Armstrong	10	17	27	7	3	15
Total	18	33	51	16	4	35

GRAND SUMMARY.

Field.	SEPT. 1, 1883.			OCT. 1, 1883.		
	Rigs.	Drilling.	Total.	New Rigs	Old Rigs.	Drilling.
Allegheny	120	144	264	82	22	123
Bradford	92	76	168	74	18	83
Warren & Forest . .	39	77	116	38	7	68
Lower Country . . .	18	33	51	16	4	35
Total Sep. 1	269	330	599	210	51	309
Total Oct. 1	261	309	570			
Decrease	8	21	29			

STOCKS, SHIPMENTS AND RUNS.

RUNS OR RECEIPTS.

PIPE LINE.	SEPT. 1883.		AUGUST 1883.	
	United	1,672,488.38	1,800,032.23	
Tidewater	301,720.56		322,726.03	
Octave Oil Co	6,403.41		3,821.52	
Charley Run			116.81	
Shaffer Run			683.75	
Franklin (limited)	5,686.15		7,828.45	
Total	1,986,298.50		2,135,208.79	
Daily average	66,209.95		68,877.42	
Total decreased receipts			148,910.29	

DELIVERIES OR SHIPMENTS.

PIPE LINE.	SEPTEMBER.		AUGUST.	
	United	1,951,490.28	1,776,750.98	
Tidewater	365,970.49		301,435.11	
Octave Oil Co	4,911.32		3,762.43	
Charley Run			92.38	
Shaffer Run			4,437.57	
Franklin (limited)	5,109.66			
Total	2,327,481.75		2,086,478.47	
Daily average shipments	77,582.72		67,305.75	
Daily excess of shipments over runs, September			11,372.77	
Daily excess of runs over shipments Aug.			1,571.67	
Daily excess of runs over shipments, July			12,905.31	
Daily excess of runs over shipments, June			12,183.86	

STOCKS.

PIPE.	SEPTEMBER.		AUGUST.	
	United	33,416,676.31	33,704,712.73	
Tidewater	2,254,470.20		2,320,594.70	
Octave Oil Co	7,869.27		4,452.53	
Charley Run	3,986.81		3,986.81	
Shaffer Run	28,052.75		28,052.75	
Franklin (limited)	41,663.16		41,086.77	
Total	35,752,718.50		36,102,886.29	
Stocks Decreased September			350,167.79	
Stocks, Decreased, August			269,053.22	
Stocks, Increased, July			386,004.51	

	RUNS OR RECEIPTS.		SHIPMENTS OR DELIVERIES.	
	Daily Average September	66,210	Daily Average September	77,582
Daily Average August	68,877		Daily Average August	67,306
Daily Average July	65,628		Daily Average July	52,722
Daily Average June	70,443		Daily Average June	58,259
Daily Average May	69,445		Daily Average May	61,411
Daily Average April	69,207		Daily Average April	63,612
Daily Average March	64,404		Daily Average March	52,737
Daily Average February	65,208		Daily Average February	44,352
Daily Average January	65,125		Daily Average January	43,813

SUMMARY of the Tidewater Pipe Line statement for September 1883.

Quantity of crude petroleum in custody at beginning of September	2,320,594.70
Quantity of crude petroleum at close of September	2,389,553.92
Less sediment and surplus	135,083.72
Decrease in stocks	66,124.50
Receipts during September	301,720.56
Deliveries during September	365,970.49
Outstanding certificates, accepted orders, etc	1,662,000.00
Credit balances	592,470.20
Total liabilities September 30 1883	2,254,470.20

AUGUST.

Quantity of crude petroleum in custody at beginning of August	2,300,949.05
Quantity of crude petroleum in custody at close of August	2,463,037.22
Less sediment and surplus	142,442.52
Receipts during August	322,726.03
Deliveries during August	301,435.11
Outstanding certificates, accepted orders, etc	1,781,000.00
Credit Balances	539,594.70
Total liabilities Aug. 31, 1883	2,320,594.70

John Trast, of Roscommon, Michigan, is reported as having found a sample of pure petroleum in a well he is sinking, thirty-five feet from the surface. It is not definitely known whether the sample was discovered already bottled or not. It will probably be used in the manufacture of a well-known ointment.

STOCKS ABROAD.

Reports from London, Trieste, and the seven principal continental seaports, showing the visible supply of petroleum at those points, are summarized in the following statement:

	Sept. 22, 1883	Sept. 22, 1882
Stocks Afloat and Ashore.	Barrels.	Barrels.
London	472,283	397,929
Trieste	84,645	127,564
Seven Continental Ports	2,152,646	1,975,316
Total Stocks afloat and ashore	2,709,574	2,500,809
Increase in Stocks	208,765	

A detailed statistical table giving the stocks on hand, the stocks in vessels on the ocean, and the amount unloading from the vessels at the different ports, is appended, which shows at a glance, the condition of affairs abroad and the increase or decrease as compared with the corresponding period of 1882.

STOCKS IN FOREIGN PORTS SEPTEMBER 22, 1883.

	Stocks		Stocks Afloat		Unloading		Grand Total Stocks		Receipts.		Shipments	
	Week end'g Sep. 22	1882.	Week end'g Sep. 22	1883.	Week end'g Sep. 22	1883.	Afloat & Unloading.	1882.	Jan. 1 to Sep. 22.	1883.	Jan. 1 to Sep. 22.	1883.
	Barrels.	Barrels.	Barrels.	Barrels.	Barrels.	Barrels.	Barrels.	Barrels.	Barrels.	Barrels.	Barrels.	Barrels.
London	318,808	433,460	22,121	24,323	57,000	14,500	397,929	472,283	544,771	536,761	313,051	645,403
Trieste	50,822	5,697	55,242	56,948	21,500	22,000	127,564	84,645	182,305	53,789	170,766	119,646
Bremen	694,691	883,203	49,054	37,046	41,000	66,000	784,745	986,249	863,589	703,205	558,656	576,143
Hamburg	306,841	262,003	59,575	81,113	38,750	34,300	405,166	377,416	742,383	657,101	488,552	593,820
Antwerp	264,648	278,912	67,734	78,421	93,000	81,300	425,382	438,633	523,973	544,209	488,885	452,149
Rotterdam	53,214	61,817	20,914	17,321	6,000	14,500	80,128	93,638	184,993	118,407	146,017	131,771
Amsterdam	39,046	50,964	19,691	22,902	24,000	20,000	82,737	93,866	113,914	149,439	115,784	147,876
Stettin	101,322	78,290	35,093	21,488	11,400	34,300	147,820	134,078	224,775	159,071	152,549	113,912
Danzig	41,419	10,742	7,919	10,024	8,000	8,000	49,338	28,766	59,314	39,530	61,384	53,436
Total	1,501,181	1,625,931	259,985	268,315	214,150	258,400	1,975,316	2,152,646	2,712,041	2,370,962	2,011,827	2,069,107

	1880.	1881.	1882.	1883.
Total stocks exclusive Danzig, London and Trieste	1,160,648	911,814	1,459,762	1,615,189
Total afloat, exclusive Danzig, London and Trieste	281,526	306,139	252,066	258,291
Total unloading, exclusive Danzig, London and Trieste	184,000	251,400	214,150	250,400
Grand Total exclusive Danzig, London and Trieste	1,626,174	1,469,353	1,925,978	2,123,880
Total Shipments exclusive Danzig, London and Trieste	98,651	93,894	81,897	88,098
Total Shipments since January 1, exclusive Danzig, London and Trieste	1,650,451	2,139,844	1,950,443	2,015,691

THE CRUDE MARKET FOR SEPTEMBER, 1883.

Day of Week.	Day of Month.	Bradford.				Oil City.				New York.				Pittsburgh.			
		Opened.	Highest.	Lowest.	Closed.	Opened.	Highest.	Lowest.	Closed.	Opened.	Highest.	Lowest.	Closed.	Opened.	Highest.	Lowest.	Closed.
S	1	109	109 1/4	108 1/8	108 5/8	109	109 1/2	108 1/8	108 5/8	108 7/8	109 1/4	108 1/4	108 1/4	108 1/2	109 1/2	108 1/2	109 1/2
M	3	108 1/8	108 1/4	107 1/4	108	108 1/4	108 1/4	107 1/4	108	108 3/8	108 1/2	107 3/8	108	108 1/8	108 1/2	107 1/4	107 7/8
T	4	108	108	106 7/8	107	107 1/2	107 1/2	106 7/8	107 1/2	108	108 1/8	106 7/8	106 7/8	107 3/4	107 3/4	106 7/8	106 7/8
W	5	107 1/8	108 3/8	107 1/8	108 1/4	107 1/4	108 3/8	107 1/4	108 1/4	106 3/4	108 3/8	108 3/8	108 3/8	108 1/2	108 3/8	107 1/2	108 1/4
T	6	108 7/8	108 7/8	108 1/4	108 1/4	108 7/8	109	108 1/4	108 7/8	108 3/4	108	108 1/4	108 3/4	108 7/8	108 1/4	108 1/4	108 3/8
F	7	108 1/4	108 1/2	107 3/4	107 7/8	108 3/4	108 5/8	107 7/8	107 7/8	108 1/2	108 3/8	107 3/4	108	108 1/2	108 1/2	107 3/4	107 7/8
S	8	108	108 3/8	108	108 3/8	108 1/4	108 3/8	108	108 3/8	108	108 3/8	108	108 3/8	108	108 3/8	108	108 3/8
M	10	109	112	109	112	108 7/8	112	108 7/8	112	109	111 7/8	109	111 7/8	108 7/8	112 1/8	109	112 1/8
T	11	113	116 1/4	112	116 1/2	113	116	112 1/2	116	116	113	116	112 1/2	113	116	112 1/2	113 1/4
W	12	117	117	111 7/8	112 1/4	116 1/2	116 1/2	112 1/4	112 3/8	116 1/2	116 3/8	111 3/4	112 1/4	116	116	111 7/8	112 1/4
T	13	112 3/8	112 3/8	111 1/2	111 1/2	112 1/4	113	111 1/2	111 3/4	112 3/8	113	111 1/8	111 3/8	112 3/4	113	111 1/2	111 3/4
F	14	112	112 1/2	111 3/8	111 3/8	111 1/2	112 1/2	111 1/4	111 1/4	111 7/8	112 1/2	111 3/8	111 3/8	111 3/4	112 3/8	111 1/8	111 3/8
S	15	111 3/8	115 3/4	111 3/8	115	111 1/2	115 1/2	111 1/2	114 7/8	111 3/8	115 3/8	111 3/8	114 7/8	111 1/2	115 1/2	112 3/4	114 7/8
M	17	116	116	113 3/4	114 3/8	114 7/8	115 7/8	113 7/8	114 3/8	115 3/8	115 3/4	113 3/4	114 3/8	115 1/2	115 3/8	113 3/8	114 3/8
T	18	114 3/8	115 3/8	113 3/4	114 3/8	114 3/4	115 3/8	113 3/4	114 3/8	114 3/8	115 3/8	113 3/4	114 3/8	114 3/4	115 3/8	113 3/4	114 3/8
W	19	114 3/8	115 1/8	114 3/8	114 3/4	114 3/4	115	114 3/8	114 3/4	114 3/4	114 3/4	114	114 3/8	114 3/4	114 3/4	114	114 3/8
T	20	114 3/4	115 1/4	113 7/8	114 3/8	114 3/8	115 1/4	113 7/8	115	114 1/4	115	113 7/8	114 3/4	114	115 3/8	113 3/4	115
F	21	115	117 3/8	114 3/8	115 3/4	115	117 3/8	114 3/8	115 7/8	114 3/4	117 1/4	114 3/8	115 3/4	114 3/4	117 1/4	114 1/2	116
S	22	115 3/4	116 3/8	113 3/8	114 3/4	115 7/8	116 1/2	113 1/2	114 3/4	116	116 3/8	113 1/2	114	115 1/8	116 1/2	113 1/2	114 3/8
M	24	114	114 1/4	112 7/8	113 1/4	114 1/4	114 3/8	112 7/8	113 1/4	113 7/8	114 1/8	112 3/4	113 3/8	114	114 1/8	112 3/8	113 3/8
T	25	113 3/8	115 3/8	113 3/8	115 1/2	113	115 3/8	112 7/8	115 1/2	113 3/8	115 3/4	113 3/8	115 3/8	113	115 3/8	112 7/8	115 1/2
W	26	116	116 1/2	115 1/4	115 3/4	116 3/8	116 3/8	115 1/2	115 3/8	116 3/8	116 1/2	115 1/4	115 3/4	115 3/4	116 3/8	115 3/4	115 3/8
T	27	115 1/4	115 1/2	114 1/4	114 3/4	115 3/8	115 3/8	114 3/8	114 3/8	115 3/8	115 3/8	114 3/4	114 3/4	115 3/8	115 3/8	114 3/8	114 1/2
F	28	114 3/4	115 7/8	114 3/4	115 3/4	114 3/8	115 7/8	114 3/8	115 3/4	114 3/8	115 3/4	114 3/8	114 3/8	114 3/4	115 3/8	114 3/8	115 1/2
S	29	116	116	115 1/4	115 1/2	116	116 1/4	115 1/4	115 1/2	116	116 3/8	115 1/2	115 1/2	116	116 1/8	115 1/4	115 3/8

OFFICIAL STATEMENT. EXPORTS OF PETROLEUM, AUGUST, 1883.

BY JOSEPH NIMMO, JR., CHIEF OF BUREAU OF STATISTICS, WASHINGTON, D. C., OCT. 8, 1883.

CUSTOMS DISTRICTS.	MINERAL CRUDE.		NAPHTHAS.		LUBRICATING AND PARAFFINE OIL.		RESIDUUM.		ILLUMINATING.		TOTAL.	
	Gallons.	Dollars	Gallons.	Dollars	Gallons.	Dollars	Gallons.	Dollars	Gallons.	Dollars	Gallons.	Dollars
Boston & Charlestown, Mass.					44,651	12,600			375,557	42,306	420,208	54,906
New York, N. Y.	4,924,089	365,556	1,773,467	123,423	450,704	90,491	163,506	7,950	33,393,968	2,859,598	40,705,734	3,447,018
Philadelphia, Pa.	579,364	39,248			26,150	4,610			7,294,111	621,500	7,899,625	665,358
Baltimore, Md.									375,185	28,722	375,185	28,722
San Francisco, Cal.			1,470	331	840	816			30,580	5,797	32,890	6,944
All other districts.			3,700	490	5,718	1,694	6,216	1,595	131,531	22,565	147,165	26,344
Total for Aug. 1883	5,503,453	404,804	1,778,637	124,244	528,063	110,211	169,722	9,545	41,600,932	3,580,488	49,580,807	4,229,292
Total for Aug. 1882	5,576,520	404,726	2,632,646	184,392	690,986	143,728	531,510	32,679	34,579,412	2,833,915	44,011,074	3,599,440
Total eight months, ended Aug. 31, 1883	33,840,105	2,497,135	9,919,232	717,419	6,600,928	1,456,150	4,268,880	322,500	290,263,062	25,924,528	344,892,207	30,917,732
Total eight months, ended Aug. 31, 1882	26,176,699	1,946,425	10,538,968	789,164	5,466,244	1,200,086	2,838,318	183,936	305,078,521	26,827,245	350,008,750	30,946,859

STOCKS AT WELLS.

Up to the present writing, October 15th, reports have been received showing the amount of oil at 5,445 Bradford wells, October 1st. A comparison is made between the average stocks per well at 5,414 wells September 1st, and 5,445 wells October 1st. The parties who forwarded reports completed enough wells to make up the additional number. While the number of wells heard from is not large enough to afford absolutely accurate results, the figures furnish a basis for fair estimates on the production. The gross stocks at 5,414 Bradford wells September 1st, were 347,156 barrels, an average per well of 64.12. There were 343,729 barrels at the 5,445 wells October 1st, an average of 63.12 barrels per well. The above figures are tabulated as follows:

Time.	No. Wells.	Gross Stocks.	Average per Well
Sept. 1, 1883,	5,414	347,156	64.12
Oct. 1, 1883,	5,445	343,729	63.12
			1.00

The average decrease during September at each of the 5,414 wells was one barrel. In the Bradford district 97 wells were added to the producing list in August and 84 in September. We have no account of the number abandoned during the months named. A fair estimate on the number connected with the pipe lines October 1st, would be 12,600. Multiplying the whole number of wells by the decrease in stocks per well, the total decrease for the field was 12,600 barrels, or 420 barrels per day. The average daily Bradford pipe line runs for September were 35,894. The iron tank turned over to the United Lines, subtracted from the above, made the average runs from the wells 35,385 barrels. An estimate on Bradford's September production is made as follows:

Average daily pipe line runs	35,385
Daily reduction of stocks at wells	420
Bradford's September production (est.)	34,965
Bradford's August production (est.)	35,087

The large number of old wells torpedoed, seconded by 84 new ones, sustained the Bradford production during September. When the season of low temperature arrives, the shooting of old wells to a considerable extent will cease. Bradford's production for September, 1881, as estimated by the Producers' Committee, was 67,350 barrels.

ALLEGANY FIELD.

Operations were decidedly active in the Alleghany field during September, resulting in the completion of 157 wells which would produce oil. Reports from 553 wells gave an average of 54.5 barrels September 1st, and 51.4 barrels

October 1st. Parties who owned 553 wells September 1st, had 567 wells October 1st. The above figures fall into line as follows:

Date.	No. Wells.	Gross Stocks.	Average per Well
Sept. 1	553	30,146	54.5
Oct. 1	567	29,174	51.4
		972	3.1

Enough reports were not secured to furnish a basis for a safe estimate, but since the result obtained is a close approximation to the production of the field, they are given as an interesting exhibit. There were about 2,821 wells producing in the field September 1st, and 2,978 October 1st, but at that time they may not all have been connected with the pipe lines.

The foregoing numerals are tabulated as follows:

Time.	No. Wells.	Average per Well.	Gross Stock
Sept. 1, 1883,	2,821	54.5	153,744
Oct. 1, 1883,	2,978	51.4	153,069
	157	3.1	675

The average daily decrease for the field was twenty-three barrels. The average daily pipe line runs by both lines for September were 12,358 barrels. Hence,

Alleghany's September production is estimated at . . .	12,335 Barrels.
August production	12,264 "
July production	12,345 "

From the large number of wells completed, the production of Alleghany could not have declined during September.

FOREST, WARREN AND LOWER COUNTRY.

Thirty-four Cherry Grove wells gave an average per well of stocks of 161 barrels September 1st, and 165 barrels October 1st.

In the Cooper district 44 wells had an average of 290 barrels September 1st, and 50 wells exhibited an average of 262 barrels October 1.

Reports from 76 wells in Clarendon and the lower country show an average September 1st of 53, and October 1st of 45 barrels. They are tabulated as follows:

Field.	No. Wells.	Average per Well, Sept. 1st.	Average per Well, Oct. 1st.
Cherry Grove . .	34	161	165
Cooper District .	44	290	262
Miscellaneous . .	76	53	45

The outside pipe line runs, viz.: for all sections except Alleghany and Bradford were 17,958 barrels. Assuming that these runs fairly represent the production, an estimate on the yield of the region for September would be as follows:

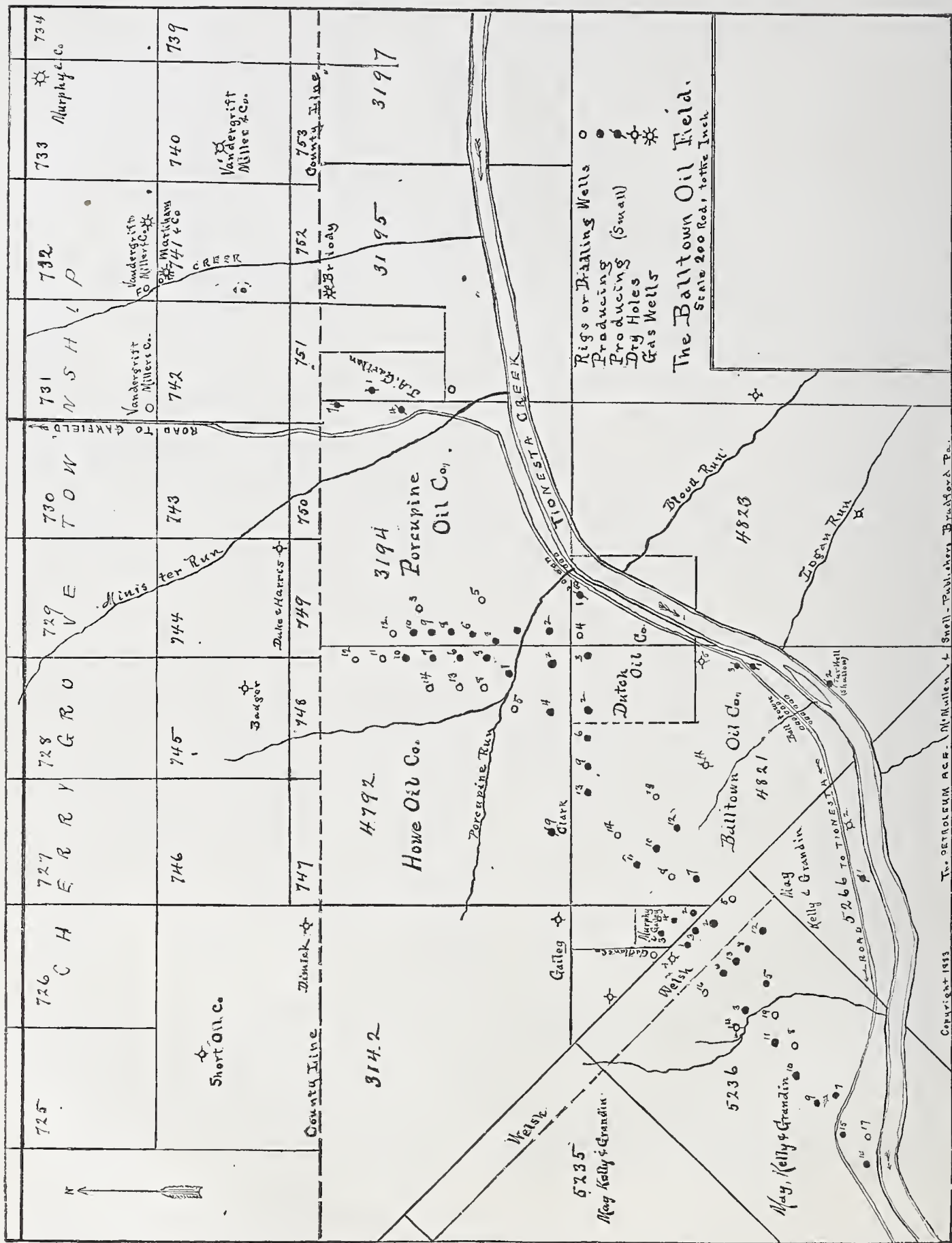
Alleghany field	12,335 Barrels
Bradford	34,965 "
Outside	17,958 "

Estimated daily average for region 65,258 Barrels

The above is a crude estimate, and is thrown out in a suggestive way to stimulate investigation.

The new Rochester and Pittsburg time table was not completed in time for this issue, but will appear in the next number of the AGE.

MAP OF THE BALLTOWN OIL FIELD.



THE PETROLEUM AGE.

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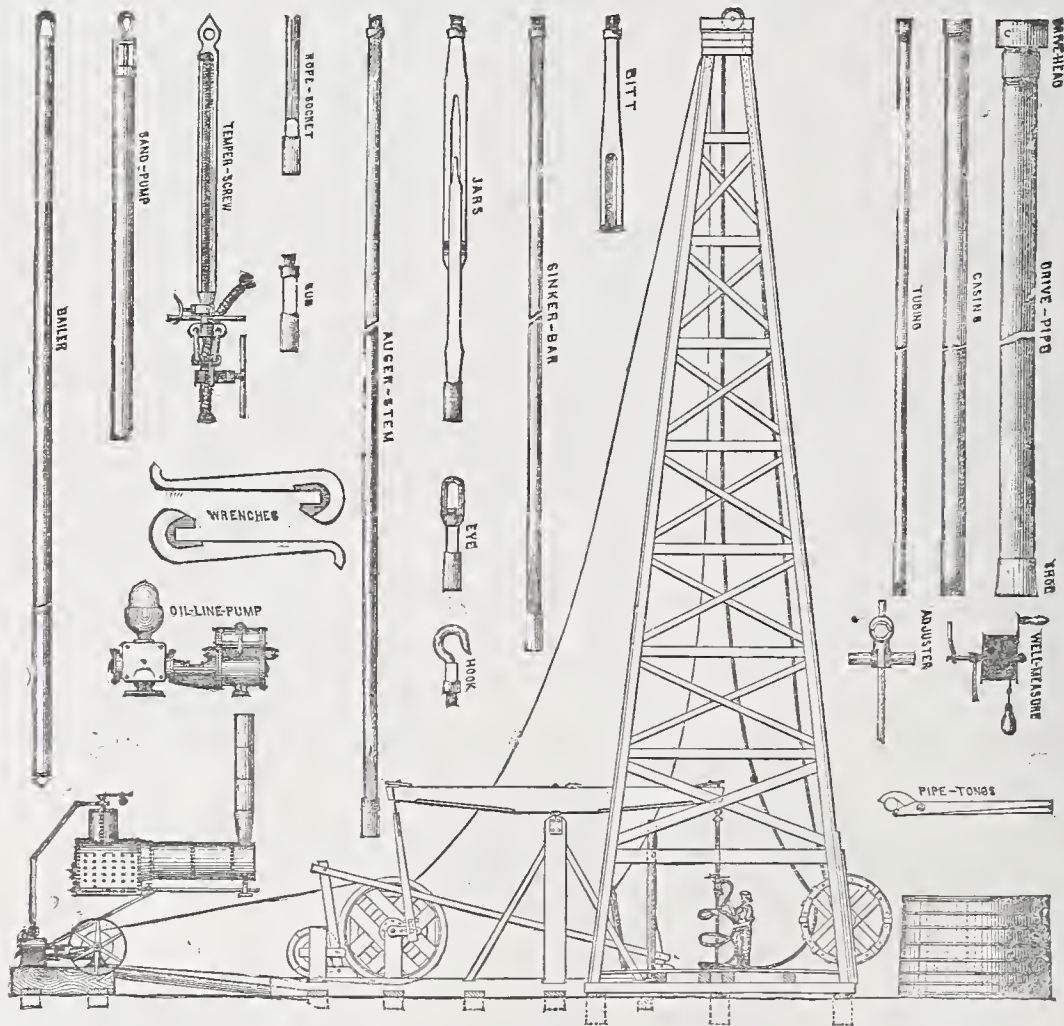
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THE PETROLEUM AGE.

VOL. II.

BRADFORD, PA., NOVEMBER, 1883.

No. 10

MOONLIGHTERS AND TORPEDOES.

The "moonshiner" heroes of the illicit distilleries among the mountain regions of the South found their counterpart in the moonlighters of the oil regions. But, while the "moonshiner" sought to evade the stringent taxes imposed on distilled beverages by the United States internal revenue, the moonlighter was merely assisting the oil producer, to increase the flow of his wells, without paying tribute to the energetic company that controlled this privilege under the exclusive cover of a patent right. In the one case, the special machinery of the government was in operation, while in the other, it was the private employees of a wealthy firm that sought to enforce the law. The moonshiner had United States Marshals and special constables opposed to him, and these he fought with cunning and desperation. The moonlighters had only to avoid the sleuth hound vigilance of the "Roberts spotters," as he derisively termed his foes.

The simple operation of exploding a powerful blast at the bottom of an oil well, shattering the sand rock into minute fragments and forcing it to yield forth its supply of oleaginous fluid, at an increased rate, would hardly seem of sufficient importance, to demand the protection of the United States government or afford an adequate basis upon which to secure the monopolistic privileges of a patent right. But, simple as it may seem, and unqualified as has been the success of this process, the inventor, Col. E. A. L. Roberts, encountered all the difficulties that usually beset originators of new ideas and improved methods of whatever kind. Twenty years ago few producers could be found willing to take the risk of permitting any blasting experiments to be performed upon their property. They persistently pumped their declining wells and looked with unconcealed contempt, upon the man, who wanted to produce a miniature earthquake at the bottom of the holes, they had taken so much trouble to drill. They openly expressed their fears that the explosion, of what seems at the present time, a very insignificant charge of powder, might destroy a well completely and ruin its producing qualities, at once and forever. The original patentee was too poor to purchase wells

and conduct his experiments in his own manner, and it required, time, patience and a great deal of persevering labor, before he could prove to the oil producing world that "shooting" a well, instead of lessening or destroying, actually increased its output of crude.

It was in May, 1866, that Colonel Roberts secured letters patent for the process of torpedoing oil wells, for the increase of production, *using fluid for tamping*. No one could have imagined at that time the benefits that were to accrue from this simple invention, and the wide-spread influence it was destined to have upon the production of petroleum. By the free use of the torpedo wide areas of territory, that the drill condemned as comparatively worthless for oil producing purposes, have been made to yield abundantly and furnish locations for thousands of profitable wells. The hard, close rock of the Bradford field opens its pores and gives up its rich supplies in enormous quantities, only after mighty struggles with the resistless torpedo.

The "shooting" of wells with blasts of giant powder and other comparatively slow explosive compounds, has long been superseded by the use of nitro-glycerine. And the size of the torpedo has grown from baby tubes, containing from two to eight quarts, to great tin receptacles, of the shape and general appearance of water conductors, and which contain thirty, forty, sixty, eighty and even one hundred quarts of the rock rending explosive. The producer no longer regards the invention with suspicion, and the torpedo has come to be as important a matter as anything else connected with the sinking of an oil well. Scores of wagons now traverse the country every day, bearing heavy charges of nitro-glycerine, under the direction of hardy men, who have adopted the perilous business of "shooting" wells for a livelihood. The poor inventor, long since became a millionaire, and only a few years ago departed this life, leaving behind him a business that will flourish wherever the drill reveals the presence of petroleum.

As soon as Col. Roberts had demonstrated that oil wells could be treated to huge doses of explosive compounds and show marked improvement under such treatment, the moonlighter made his

appearance. He was actuated by an impulse to assist, for a ready money consideration, the producer who desired to make use of nitro-glycerine torpedoes, without paying the exorbitant fee which the inventor had fixed as a price for similar services. Nitro-glycerine is easily and cheaply manufactured, and competition between the agents of the inventor and the moonlighter was simply based upon the value of the privilege afforded by the patent, and the price of labor, that was willing to venture human life in handling the dangerous compound.

Whoever has watched the operation of blasting rock in a stone quarry, will have observed how carefully fine sand and small pieces of stone are pounded down the drilled hole after the cartridge has been inserted. An oil well is merely a similar hole, drilled into the solid rock, of a greater size and correspondingly greater depth. When the drill penetrates the oil bearing rock, or "strikes the sand," as the drillers term it, the hole immediately begins to fill with oil. Unless the territory is very light, or the sand rock exceedingly close and hard, it is impossible to bail the hole completely free from oil. Col. Roberts's patent covered the right to utilize this column of fluid for tamping purposes. When a well is drilled, it is allowed to stand until a sufficient quantity of oil has accumulated in the hole to warrant shooting. The glycerine, contained in long tin tubes, or shells, is lowered to the bottom and exploded by means of a weight dropped from the mouth of the well upon a common gun cap, inserted in the top of the shell. When it is remembered that an oil well is from nine hundred to two thousand feet deep, the tremendous pressure, exerted by a column of fluid five and five-eighths inches in diameter, and of a height often equal to this immense depth, is readily recognized. Colonel Roberts's patent covered the right to utilize this pressure and thus render the explosion of nitro-glycerine more effectual in breaking up the sand rock.

Numerous other methods were devised for torpedoing wells, but it was impossible to avoid or get around this point of fluid tamping, and in all cases where the matter was tried in the courts the Roberts patent came out victor. But the moonlighter paid little attention to the legal aspects of the patent cases. He went quietly at his work, transporting his deadly loads of nitro-glycerine about the country over unfrequented roads and neglected by-paths, and inserting his torpedoes by the pale light of the moon and stars. He made no scruple of infringing patent

rights, wherever a well had reached the crucial point and its owners were willing to turn a quickly made, but often very costly dollar, in the employment of his services. The peculiar quality of this class of work developed all the hardihood of his nature. The moonlighter went his rounds with death constantly staring him in the face. A single miss-step, the hasty tipping of a can, the sudden jar of his wagon against a rock, a runaway team or any of a thousand other similar instances, and a life is blotted out with nothing but a few scattered shreds of human flesh to tell the story of the tragedy. Nitro-glycerine never leaves any crippled victims. Its work is instantaneous and effectual.

The Roberts company was constantly in the field, and its hired spies watched closely the completion of every well, and reported the fact whether it was shot by the active moonlighter or the regular employees of the patent owners. These spies, or "spotters," as they were termed, were kept very busy by the moonlighters, and the two classes of men exercised constant surveillance over each other. The spotter, who succeeded in the discovery of a moonlighter in the act of shooting a well, at once reported the fact to the company's headquarters. The unfortunate owner was then notified, that unless the amount of the royalty was immediately forthcoming, a deputy marshal would be sent to summons him for appearance before a United States court. The Roberts company was constantly litigating cases of this kind, and employed a regular bureau of legal talent to prosecute these infringements upon its patents. The oil producer, who never attempted to make use of a moonlight shot and avoid the payment of the royalty, is an exceedingly rare specimen of the human kind. Numerous ingenious schemes were devised to evade the exactions of the patentees, with varying degrees of success. But the Roberts men were not easily hoodwinked, and they pursued their investigations into the doings of the moonlighter with relentless vigor. A method at one time in vogue was called "using a setter." It was not always successful unless there was some sort of a collusion between the producer and an employee of the company. A moonlighter was employed to lower thirty, forty or sixty quarts of glycerine into the well without exploding it. A ten or twelve quart shot was then ordered of the Roberts company. An employee arrived on the ground, lowered the small shell and exploded it. In this way, the effect of sixty or eighty quarts of glycerine, was received by paying the patentees

the price of a much smaller shot. The moonlighter was often a discharged employee of the Roberts company, and not infrequently the functions of both the spotter and the moonlighter were found in the person of a single individual.

Scattered throughout the oil region, in little frequented localities and hidden recesses and ravines in the woods were the rude shelters known as "bush factories," where the moonlighter obtained his supplies. A couple of men with a small capital, having selected such an out of the way place, convenient to a water course or spring, obtained a quantity of glycerine, nitro and sulphuric acids, and were soon ready to notify the moonlighter, where he could procure nitro glycerine on the quiet and at a reasonable price. Arrived at the well, and having his torpedo line reel securely fastened to the band wheel crank of the derrick, the long shell of the torpedo suspended in the cavity of the well, it required a cool head and a steady hand to bring the powerful explosive from the wagon in its square tin receptacles and pour it without a tremor into the long tin tube, through which it was expected to do its gigantic work on the sand rock, a thousand feet below the surface of the ground. Many a robust man has been swiftly hurled into the shadowy beyond, by a sudden and unexpected flow from a well, while pouring down its throat the dose that was to make it respond more quickly to the desires of its owners. When once the shells were filled and started on their downward course, the further danger was very small. The reel was steadily unwound until the torpedo rested upon the bottom, when the dropping of the heavy iron weight, was all that was necessary to finish the operation.

The life of a moonlighter, constantly exposed to danger and harassed by spies, was never one to be envied. The peculiar nature of the business required its follower to face all kinds of weather, and to pursue his avocation while other laborers were enjoying peaceful repose in slumber. Under the circumstances it is not to be wondered at that his leisure hours were often squandered in idle dissipation, and having escaped a more cruel but none the less merciful fate, he often came to present the sorrowful spectacle of a wrecked physical manhood. But the moonlighter of the oil region and his sleuth hound, the spotter, already belong to a past age of petroleum history. In May, of the present year, the Roberts patents for shooting oil wells with nitro-glycerine expired, and the moonlighter engaged in the free-for-all race of legitimate competition in the torpedo business.

A SUGGESTION FOR THE BROKERS.

TITUSVILLE, PA., Nov. 3d, 1883.

To the Editor of the Petroleum Age:

A great deal of dissatisfaction has been manifested since the first of the month with the press report of monthly oil operations. A few inaccuracies may have crept into it, or a great many misstatements may have been maliciously published. No one appears to know. But what is the oil trade doing in the direction of gathering these statistics? Here we have a dozen exchanges in the country, and not one of them takes any pains to acquire accurate information in regard to the number of wells completed every month or the number of wells that are preparing to drill. We have no reports that can be depended upon as official, and none which are furnished the public from any other source than that of the press. Of course, the pipe lines are in a position to know just how this thing stands all the time, but did they go to the expense of printing reports of it for the public benefit, no one would believe them until they had been confirmed by a committee from the oil exchanges. Now, it seems to me that such a report would not cost a vast amount, and that by two or three exchanges clubbing together and dividing the expense, such a vital question as this one might be settled every month to the satisfaction of everybody. The producers, too, are interested in the matter, and are not willing to have the amount of their operations misrepresented. The brokers and their customers do not desire to be misled, and the hearty cooperation of all interested should not be very difficult to secure. It is not at all the interest of the press to agitate any such ideas as this, for if its reports are ever doctored, as is claimed, such a course on the part of the exchanges as that of compiling the statistics of the field, would compel it to be honest. The enterprise of our oil region journals in publishing this information is commendable, but we are not justified in doing a great deal of kicking, unless we are willing to put our shoulders to the wheel, and help ourselves in keeping posted on a matter so vital as this.

SUGGESTER.

L. G. Peck, now a resident of Hazleton, Barber county, Kansas, is back to the oil country on a short visit. He says: "Go west, oil man."

The Imperial Oil Company (Limited), of Canada, charges for storage at the rate of \$1.20 a year on a thousand barrels of oil.

THE PETROLEUM MARKET.

Contrary to all anticipations, the market during the past month has been quite sluggish and inactive. The anxiously expected boom that was to parallel, if not exceed, that of last fall, has as yet shown no signs of being realized. The extreme range of prices for October was from 107 7/8 to 115 3/4, a fluctuation of less than eight cents. The month opened with crude certificates fairly active and firm at 115 1/2 to 115 3/4 and closed at 109 1/2 to 109 3/4. There was nothing developed in the situation to warrant any sudden change, although everything looked favorable for an advance. The production has been maintained by the new work in progress and the general use of nitro glycerine among the old wells. The drainage upon the surplus stocks in the region, although not so great as during September, has continued, and at the present writing shows no indications of speedily abating.

The heavy speculators seem to show no disposition to favor a decided advance, being contented to bull prices a cent or two, and hastily realize, thus keeping the market within certain defined limits and rendering speculation in petroleum a chopped up and hazardous sea for the barks of the small navigators. This phlegmatic position is all that the active traders and pikers desire. Their profits arise from the dexterity they have acquired in nimbly seizing and letting go bundles of certificates before freshening dues have accumulated upon them. To this class of brokers good luck in guessing stands them in more stead than any amount of careful head work on the situation.

But, take it all in all, the market seems to be in a "waiting" attitude, ready to take a decided move either way, upon important news from the producing field. If a bull movement is to result it must come through a positive change in the present aspect of the Bradford and Allegany sections. Forest county still has in store a few gushers of considerable magnitude that will possibly cause some spasmodic tremors to a highly sensitive market, but a sudden falling off in Bradford and Allegany would prove a more potent agent in securing an elevation of prices.

THE CLEARANCES.

	October. Barrels.	September. Barrels.
Bradford, Oil Exchange	142,034,000	127,660,000
Bradford, Prod. Pet.	58,238,000	30,160,000
Oil City	187,598,000	222,800,000
New York, N. Y. Pet	209,150,000	158,292,000
New York, National	129,768,000	109,760,000
Pittsburgh	118,742,000	143,314,000
Total	845,530,000	791,986,000

Notice the improvement in this issue of the AGE.

THE REFINED MARKET.

There has been very little change in the position of the refined market during the past month. The export demand was weak and irregular, but the home demand ruled strong and proved the mainstay of the market. Java, China, Japan and some of the Mediterranean ports chartered a few vessels, but the amount of business was not large. Scarcity of tonnage acted to some extent in checking the foreign trade.

The refineries were all busy completing their contracts for domestic use and showed very little disposition towards accepting orders for future delivery. Water white 150° test was advanced on October 6 to 12 cents and has continued steady at that figure. Seventy degrees Abel test has maintained an average price of 8 1/2 cents.

The closing quotations on Standard White oils, October 30, were: 110° fire test, 8 3/4 @ 9; 120°, 9 @ 9 1/4; 130°, 10c; N. Y. State test, 10 @ 10 1/4 c, and 300° test, 17 @ 20c.

Naptha was advanced early in the month to 5 7/8 c., and shortly afterwards to 6c. Manufacturers report their stocks of this article the lightest known for several years.

		New York.	Philadelphia.	Baltimore.	London and Liverpool.	Bremen,	Antwerp.
		Cts.	Cts.	Cts.	Pence.	Marks.	Francs.
M	1	8 1/2	8 3/4	8 3/4	7 1/4	8 05	20 1/4
T	2	8 1/2	8 3/4	8 3/4	7 1/4	8 00	20 1/4
W	3	8 1/2	8 3/4	8 3/4	7 1/4	8 00	20 1/4
T	4	8 1/2	8 3/4	8 3/4	7 1/4	8 00	20 1/4
F	5	8 1/2	8 3/4	8 3/4	7 1/4	8 00	20 1/4
S	6	8 1/2	8 3/4	8 3/4	7 1/4	8 00	20 1/4
M	8	8 1/2	8 3/4	8 3/4	7 1/4	8 00	20 1/4
T	9	8 1/2	8 3/4	8 3/4	7 1/4	8 00	20 1/4
W	10	8 1/2	8 3/4	8 3/4	7 1/4	8 00	20 1/4
T	11	8 1/2	8 3/4	8 3/4	7 1/4	8 00	20 1/4
F	12	8 1/2	8 3/4	8 3/4	6 7/8	8 05	20
S	13	8 1/2	8 3/4	8 3/4	6 7/8	8 05	20
M	15	8 1/2	8 3/4	8 3/4	6 7/8	8 15	20
T	16	8 1/2	8 3/4	8 3/4	6 7/8	8 15	20
W	17	8 1/2	8 3/4	8 3/4	6 7/8	8 15	20
T	18	8 1/2	8 3/4	8 3/4	6 7/8	8 15	20
F	19	8 1/2	8 3/4	8 3/4	6 7/8	8 15	20
S	20	8 1/2	8 3/4	8 3/4	6 7/8	8 15	20
M	22	8 1/2	8 3/4	8 3/4	6 7/8	8 00	19 3/4
T	23	8 1/2	8 3/4	8 3/4	6 7/8	8 00	19 3/4
W	24	8 1/2	8 3/4	8 3/4	6 7/8	8 00	19 3/4
T	25	8 1/2	8 3/4	8 3/4	6 7/8	8 00	19 3/4
F	26	8 1/2	8 3/4	8 3/4	6 7/8	8 00	19 3/4
S	27	8 1/2	8 3/4	8 3/4	6 7/8	8 00	19 3/4
M	29	8 1/2	8 3/4	8 3/4	6 3/4	8 00	20
T	30	8 1/2	8 3/4	8 3/4	6 3/4	8 00	20
W	31	8 1/2	8 3/4	8 3/4	6 3/4	8 00	20

We are informed by a gentleman who has made oil history a study, that the first oil ever found in this country was struck at Olive, near Caldwell (Ohio), in 1814. It was the McKee well. There was a well struck at Burkesville, Kentucky, in 1828. Its product was called and sold as "American Oil," and used for medical purposes. It has been claimed that this is the oldest well in the world, but the McKee well was struck fourteen years earlier.—*Marietta Leader.*

PIPE LINE RUNS.

The difference between the Bradford and Allegany runs and those of the entire region make up what is termed the outside runs. Taken for a number of consecutive months these show the production of all sections of the oil regions outside of Bradford and Allegany. The following table shows the average daily runs for Allegany, Bradford, and the outside region from the 1st of January:

1883.	RUNS.	RUNS.	RUNS.	TOTAL.
MONTH.	BRADFORD.	ALLEGANY.	OUTSIDE	DAILY RUNS
January	36,847	14,106	14,172	65,125
February	38,481	13,154	13,573	65,208
March	37,754	12,619	14,031	64,404
April	38,810	13,742	16,655	69,207
May	39,039	13,793	16,613	69,445
June	38,614	13,499	18,330	70,443
July	36,489	12,381	16,758	65,628
August	37,165	12,743	18,969	68,877
September	35,894	12,358	17,958	66,210
October	35,654	12,757	19,238	67,649

SUMMARY of the Tidewater Pipe Line statement for October 1883.

Quantity of crude petroleum in custody at beginning of October	Barrels.
Quantity of crude petroleum in custody at close of October	2,254,470.20
Less sediment and surplus	127,331.35
Receipts during October	327,040.39
Deliveries during October	294,685.29
Outstanding certificates, accepted orders, etc	1,762,000.00
Credit Balances	523,351.45
Total liabilities Oct. 31, 1883	2,285,351.45

SEPTEMBER.

Quantity of crude petroleum in custody at beginning of September	2,320,594.70
Quantity of crude petroleum at close of September	2,389,553.92
Less sediment and surplus	135,083.72
Decrease in stocks	66,124.50
Receipts During September	301,720.56
Deliveries during September	365,970.49
Outstanding certificates, accepted orders, etc	1,662,000.00
Credit balances	592,470.20
Total liabilities September 30 1883	2,254,470.20

SUMMARY of United Pipe Line statements for September and October, 1883.

	October.	September.
	Barrels.	Barrels.
Receipts, all sources	1,750,479.04	1,672,488.38
Deliveries	1,900,918.19	1,951,490.28
Gross Stocks	35,510,912.40	35,792,108.67
Sediment and Surplus	2,257,978.17	2,375,432.36
Net Stocks	33,252,934.23	33,416,676.31
Outstanding Acceptances	27,623,847.75	27,736,393.02
Credit Balances	5,629,086.48	5,680,283.29

The exports of refined oil from the United States to Spain, Portugal, Gibraltar, Italy, Austria, Greece, Turkey in Europe, Turkey in Asia, and Russia, up to November 10, 1883, exceeded those for the same time last year by 5,328,935 gallons. This is the way the Russian bear cuts in on the demand for refined.

W. F. Coast, of Olean, has secured the contract to sink a test well at Franklinville, N. Y. Mr. Coast is to erect the derrick, furnish all the machinery and drill 2,000 feet for \$1,900. If a greater depth is deemed advisable one dollar is to be received for each additional foot.

Statistical History of Balltown and Cooper Districts.

The gauges of the Balltown and Cooper districts which are taken weekly by the scouts, are tabulated below.

BALLTOWN PRODUCTION.

Date 1883.	No. Wells.	Barrels.	Rigs.	Drilling.	Total
April 28		983	10	10	20
May 8		970			18
May 11	11	1406		8	17
May 19	13	1146	7	8	15
May 25	14	1065	7	12	19
June 1	17	1689	7	8	15
June 9	17	1800	5	9	14
June 15	18	1851	5	10	15
June 22	20	2925	10	8	18
June 29	22	2499	11	7	18
July 6	23	2131	11	9	20
July 14	24	2063	7	13	20
July 21	25	2223	8	13	21
July 27	25	1983	9	14	23
August 4	31	3285	13	8	21
August 11	34	3586	12	7	19
August 17	35	4811	11	10	21
August 25	36	3328	11	12	23
September 1	37	3095	8	16	24
September 8	39	3287	11	15	26
September 15	41	4155	11	15	26
September 22	45	5086	8	12	20
September 29	48	4569	9	12	21
October 6	49	6458	12	10	22
October 13	51	4851	11	9	20
October 20	53	4517	5	9	15
October 27	55	3347	4	8	12
November 3	57	4111	3	7	10
November 10	59	3450	4	5	7

COOPER PRODUCTION.

Date.	No. Wells.	Barrels.	Rigs.	Drilling.	Total.
February 28	16	1599			
March 10	22	3938			
March 15	25	1941			
March 21	25	1500			
March 23	26	2403			
March 27	27	2355			
March 31	32	3939			
April 11	37	4624	19	22	41
April 19	46	3234	14	28	42
April 28	47	4944	13	26	39
May 3	51	4224			
May 11	60	4326	14	18	32
May 19	63	4632	17	22	39
May 25	68	4007	14	19	33
June 1	75	5011	13	20	33
June 9	78	4881	19	17	36
June 15	82	4140	15	22	37
June 22	85	4032	13	18	31
June 28	85	3735	15	17	32
July 6	90	3994	15	11	26
July 13	93	3306	18	11	29
July 20	97	3401	21	8	29
July 27	98	3714	17	12	29
August 4	99	3129	20	15	35
August 10	101	3250	18	17	35
August 17	102	3279	16	19	35
August 24	106	3407	14	16	30
August 31	111	3811	13	12	25
September 7	111	3066	13	15	28
September 14	116	2939	13	12	25
September 21	119	3911	11	11	22
September 28	121	3832	10	13	23
October 5	123	4142	13	11	24
October 12	125	3910	11	9	20
October 19	126	3809	7	14	21
October 26	128	3526	6	13	19
November 2	131	3831	3	14	17
November 9	134	3500	3	11	14

Pittsburgh claims to supply its inhabitants with gas at a cheaper rate than any other city in the world. The average price at present is one dollar per thousand feet, and a great scheme is under way to manufacture it on an immense scale and furnish it for all kinds of household purposes. At seventy-five cents per thousand feet, it can be used for heating and cooking as cheaply as coal at its present prices. A company that could furnish gas for sixty cents per thousand (which is deemed entirely feasible), would have to operate the first three years without realizing any profit on its investment.

THE REAL ESTATE MARKET.

BY C. D. ANGELL.

While real estate was comparatively quiet during the later summer months, the last six weeks have been characterized by remarkable activity in the Bradford and Allegany fields. No large transactions have occurred in Allegany county, but numerous small sales have been made, principally in the less developed portions of Scio, Alma and Genesee, where small prospective territory has been opened up, leading to the transfer of a large number of tracts of from twenty-five to one hundred acres to the smaller operators, as the larger companies have not seemed to seek interests in these lands. For the past year, more than ever before, the tendency of petroleum real estate has been in the direction of aggregation by the larger companies. This is particularly true in the Forest, Warren and Bradford fields.

At the opening of the oil excitement in McKean county, the prospective territory was held principally in blocks. The Bingham, Babcock, Borden, Kingsbury, Weston and Moody tracts covered a large portion of the producing field, and these tracts were early divided up by lease or purchase among the newly formed companies or enterprising individuals by whom they were proven and developed, when they were *re-sold* to the companies who, by combination of capital and successful enterprise, have now again absorbed largely the smaller interests. In Warren and Forest counties the lands which were held principally by non-residents passed in larger blocks into the hands of strong companies, who have held them, in the main, intact, operating according to their inclination and interests. The daily production of six of the leading companies of the oil regions now closely approximates sixteen thousand barrels, while fourteen additional companies and individual producers have about nine thousand barrels daily production, giving to twenty companies an aggregate daily production of twenty-five thousand barrels. Negotiations are now pending by which many of these smaller companies will be absorbed by the larger, as nine-tenths of all properties now being sold are drifting into the control of the larger organizations, and combination of capital seems to be the rule in this, as in other industries. This is none the less true of the California field, which is virtually owned and controlled by one company, which not only holds the land, but pro-

duces, ships and refines the oil, and, through a connecting organization, places it on the market. In the much talked of Russian field, combination of capital is a necessity to meet the enormous expense of importing tools, machinery, supplies, and refining and shipping the oil when produced.

The sales since October first have been nearly one million dollars, the largest being three hundred thousand dollars.

The Enterprise Transit Co., through their representative, Mr. John Brown, have sold portions of their tract north of the state line to the following parties, at \$300 per acre: A. E. Jones, of Philadelphia, 50 acres; Coleman, Boyne & Penny, 50 acres; J. T. Jones and H. L. Blackmarr, 150 acres; and F. L. Blackmarr and Joseph Post, 100 acres. F. W. Mitchell is operating on a purchase from these lands which was made last year.

STOCKS, SHIPMENTS AND RUNS.

RUNS OR RECEIPTS.

PIPE LINE.	OCTOBER 1883.	SEPT. 1883
United	1,750,479.04	1,672,488.38
Tidewater	327,040.39	301,720.56
Octave Pipe Co.	4,871.19	6,403.41
Charley Run		
Shaffer Run		
Franklin (limited)	7,274.41	5,686.15
Cranberry Pipe Line	7,463.22	
Total	2,097,128.25	1,986,208.50
Daily average	67,649.29	66,209.95

DELIVERIES OR SHIPMENTS.

PIPE LINE.	OCTOBER	SEPTEMBER.
United	1,900,918.19	1,951,490.28
Tidewater	294,685.29	365,970.49
Octave Oil Co	5,791.03	4,911.32
Charley Run		
Shaffer Run		
Franklin (limited)	13,444.00	5,109.66
Cranberry Pipe Line	5,434.23	
Total	2,220,272.74	2,327,481.75
Daily average shipments	71,621.70	77,582.72
Daily excess of shipments over runs, October		3,972.41
Daily excess of shipments over runs, September		11,372.77
Daily excess of runs over shipments Aug.		1,571.67
Daily excess of runs over shipments, July		12,905.31
Daily excess of runs over shipments, June		12,183.86

STOCKS.

PIPE.	OCTOBER.	SEPTEMBER.
United	33,252,934.23	33,416,676.31
Tidewater	2,285,351.48	2,254,470.20
Octave Oil Co	7,711.62	7,869.27
Charley Run	3,986.81	3,986.81
Shaffer Run	28,052.75	28,052.75
Franklin (limited)	35,493.57	41,663.16
Cranberry Pipe Line	3,506.43	
Total	35,617,036.89	35,752,718.50
Stocks decreased October		135,681.61
Stocks Decreased September		350,167.79
Stocks, Decreased, August		269,053.22
Stocks, Increased, July		386,004.51

	RUNS OR RECEIPTS.	SHIPMENTS OR DELIVERIES.
Daily Average, October	67,649	71,621
Daily Average September	66,210	77,582
Daily Average August	68,877	67,306
Daily Average July	65,628	52,722
Daily Average June	70,443	58,259
Daily Average May	69,445	61,411
Daily Average April	69,207	63,612
Daily Average March	64,404	52,737
Daily Average February	65,208	44,352
Daily Average January	65,125	43,813

The Howard, O'Connor & Shanley well, on lot 106, Alma, averaged nine barrels per day the first forty-four days. Since the 22nd of October the well has averaged about six barrels per day.

PETROLEUM EXPORTS.

THE exports of refined, crude and naphtha, from all United States' ports from Jan. 1 to Nov. 10, for the years 1882 and 1883, were as follows:

	1883. GALLONS.	1882. GALLONS.
From Boston	3,975,329	6,398,663
Philadelphia	66,139,102	77,848,237
Baltimore	8,710,505	11,088,290
Richmond	173,449	382,239
Total	78,998,385	95,717,429
From New York	327,141,614	344,540,412
Total exports from U. S.	451,139,999	440,257,841

The appended table from *The Shipping List*, of Nov. 14, gives the total exports of refined, crude, naphtha and residuum from New York to foreign countries from Jan. 1st, to Nov. 14, 1883, and for the same time in 1882.

REFINED.		
	1883.	1882.
GREAT BRITAIN.—London	32,794,583	22,882,681
Liverpool	8,643,830	7,416,406
Bristol	3,065,478	3,393,135
Ireland	5,057,230	5,610,725
Other ports	6,088,538	5,034,684
GERMANY.—Bremen	40,379,055	42,450,915
Hamburg	31,972,751	32,639,015
Königsburg and Stettin	4,766,126	10,548,384
Dantzig	1,110,141	2,120,057
Other Ports	835,570	1,282,805
FRANCE.—Marseilles		331,945
Havre		188,730
Norway and Sweden	7,189,009	6,789,961
Russia	1,539,156	1,609,272
Denmark	8,515,271	7,254,729
Belgium	35,485,234	23,902,212
Holland	13,443,340	11,570,482
Spain	147,770	178,733
Portugal	1,824,459	1,347,779
Gibraltar and Malta	2,097,608	1,142,121
Italy	2,009,896	1,258,090
AUSTRIA.—Trieste, etc	11,900,393	11,292,117
Greece	1,280,410	379,300
Turkey in Europe	3,292,551	3,522,839
Turkey in Asia	3,080,742	1,112,300
India, Siam, etc	14,039,870	19,054,060
China, Japan, etc	23,361,430	28,308,750
East Indies	28,290,220	24,800,225
AFRICA.—Alexandria, etc. E	2,420,590	1,294,600
Canary Islands	135,845	111,370
Other Ports	4,673,389	3,448,854
Australia	1,640,404	2,415,175
New Zealand	516,460	640,098
Sandwich Islands	202,500	109,505
SOUTH AMERICA.—Brazil	4,763,634	4,623,701
Argentine Confederation and Uruguay	3,331,050	2,749,583
Chili and Peru	1,248,800	1,419,310
U. S. Columbia	283,124	165,801
Venezuela	558,081	441,319
Other Ports	117,461	136,090
Central America	209,306	165,151
Mexico	1,210,771	1,044,444
British North American Colonies	1,089,307	615,744
Cuba	210,746	736,626
British West Indies and British Guiana	1,441,582	1,183,601
Other West Indies	821,178	1,104,571
Total	Galls. 317,144,889	299,230,111
CRUDE.		
FRANCE.—Havre	9,668,634	6,461,172
Marseilles	3,168,673	1,760,678
Bordeaux	1,891,439	1,929,769
Dunkirk	6,507,516	3,821,297
Other Ports	7,193,246	6,877,321
Antwerp		
Bremen	753,616	1,100,621
Norway and Sweden	62,374	148,235
Spain	11,170,875	11,658,232
Cuba	1,982,803	2,306,046
Other Ports	2,193,471	
Total	Galls. 44,522,647	36,063,465
NAPHTHA.		
Great Britain	5,054,936	6,219,433
France	5,304,633	4,153,501
Germany	1,561,081	1,002,175
Other Europe	1,665,163	1,225,540
Various Ports	97,908	161,070
Total	galls. 13,743,721	12,761,719
RESIDUUM.		
To all Ports	1883. 6,055,797	1882. 3,995,489
Total Refined since January 1, actual shipments		GALLONS. 317,144,889
do do do do crude equivalent		422,859,852
do Crude do do actual shipments		44,522,647
Grand Total Crude and Crude equivalent	galls. 467,382,499	
Same time, 1882		435,036,946

The following table shows the number of vessels, loading and to load with Petroleum at the principal American shipping ports, November 14th, 1883:

PORTS.	Refined Bbbs.	Refined Cases.	Crude.	Naph.	Res.	Total.
New York	44	19	13	3	1	80
Philadelphia	14	11	2	.	.	27
Baltimore	6	.	.	.	1	7
Total	64	30	15	3	2	114

For the nine months ending with September, 1883, Great Britain imported 48,532,325 gallons of petroleum, valued at \$7,164,700.00. During the same time last year, the imports were 44,303,628 gallons, valued at \$6,143,240.00.

The increasing cost and elegance of lamps for burning kerosene oil is one of the remarkable features of our nineteenth century civilization, especially so when we consider that gas has been and electricity will be a strong rival to oil as an illuminator. The richest porcelain vases, mounted in fine brass work, supplied with costly burners, and the whole surmounted with decorated shades of the most expensive sort, form a combination of handicraft which in many cases is disposed of at remarkable figures. One hundred and fifty dollars, it is stated, is not an unusual price for a fine kerosene library lamp, and it must be confessed that the fashion, though expensive, is a very sensible one, especially if the lamp is used both as an ornament and an illuminator. Thousands of very expensive lamps are sold every year, and there are thousands more to follow, for the fashion is not going to die out soon.

Gas pipes are now made from paper. The process is thus described: An endless strip of hemp paper, the width of which equals the length of the tube, is passed through a bath of melted asphalt, and then rolled tightly and smoothly on a core, to give the required diameter. When the number of layers thus rolled is sufficient to afford the desired thickness, the tube is strongly compressed, the outside sprinkled with fine sand and the whole cooled in water. When cold the core is drawn out, and the inside served with a water-proofing composition. In addition to being absolutely tight and smooth, and much cheaper than iron, these pipes have great strength; for when the sides are scarcely three-fifths of an inch thick they will withstand a pressure of more than fifteen atmospheres. If buried underground they will not be broken by settlement, nor when violently shaken or jarred. The material being a bad conductor of heat, the pipes do not readily freeze.

THE PETROLEUM AGE.

DEVOTED TO THE

Interests of the Petroleum Trade.

PUBLISHED MONTHLY BY

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"Oh! wad some powër the giftie gie us,
 To see oursels as ithers see us!"

Sensational rumors, inaccurate reports and malicious statements have done much to give the oil region and its enterprising inhabitants a reputation for reckless dealing and hazardous enterprises that has never been deserved. The outside world judges us by the Munchausen-like items that circulate through the columns of the press, from time to time.

The daily and weekly papers of the country seem never to grow weary of printing astounding pieces of intelligence that originated at Bradford or somewhere in its immediate vicinity. And Bradford has never suffered the lack of intelligent correspondents who have been abundantly able to gratify the desire of newspaper publishers for just this kind of intelligence.

As long as such items are confined to hairbreadth escapes from burning oil tanks, terrific freaks of the subtle explosive, nitro-glycerine, exciting combats between bulls and bears and terrible adventures about mysterious wild-cats, they do very little injury. But when a few idle words between a couple of speculative brokers are magnified into precise business transactions, or when the simple transfer of a few acres of land becomes multiplied into a couple square miles of virgin oil territory, and is telegraphed all over the world, the matter becomes worthy of comment and correction.

Within a few weeks the outside press has been discussing the sale of 40,000 barrels of oil in the Bradford exchange, which the purchaser was to receive for nothing, upon agreeing to pay the storage on the oil for a certain number of years. It is hardly necessary to state that such a transaction never occurred, except in the mind of some cunning market manipulator who wished to agitate the carriers of oil certificates a little bit in regard to their storage accounts.

A few weeks ago, our morning contemporary made a *slight* typographical error in changing the sale of 100 acres of land, into 1,000. The item was faithfully copied in the evening paper, and the correspondent of a well known oil journal gathered it up and gave the same error the wider publicity of metropolitan mention. These are only two instances of the inexactness and untruthfulness that characterize a great deal of the news that is disseminated from this part of the world. Of course, when it directly concerns the oil market, its effect is calculated beforehand, and the originators have a precise object in view.

THE PRODUCING REGIONS.

ALLEGANY FIELD.

At the close of the month of October the ragged edge of the Allegany field had the appearance of a lumber yard where timbers and material for rigs were a specialty. The count at the close of the month showed 106 new rigs, 22 which had been standing for thirty days or more and 131 wells drilling. The greatest activity prevailed in Alma, but the work in the main was scattered along the boundary line of the district. In a monthly oil report a rig or drilling well in the light undrilled territory of the Allegany field counts as much as one on Cooper hill or in the Balltown field, but the new production of a well in this New York district is an insignificant factor in making up the total new production at the close of each month. The volume of new work is not an indicator of the true condition of the field.

THE BRADFORD FIELD.

Widely scattered over the Bradford field, and wherever available room could be obtained, the drill was found to be vibrating at 97 wells on the first of November. Eighty-nine new rigs were up or building, and twenty old ones dot the hills and valleys. During October 96 wells were completed, of which number three came in dry. This volume of new work, with, perhaps, 200 strings of tools employed in cleaning out old wells and the glycerine men fairly pulverizing the sand rock, steadied the production of the broad field of Bradford between 35,000 and 36,000 barrels. The dry holes placed in the McKean list are found near Kinzua Village and on Sugar Run. The test well drilled by Clark & Armor, on Warrant 3,710, northeast of the Sugar Run development, failed to disclose any traces of crude.

The Beardsley & Guffey duster is in Warren county, on the southeastern corner of lot 2,668. It was drilled with the expectation of finding oil west of the Dew Drop pool. The sand at the well had the regulation thickness, but was barren of oil. Eaton & Bundy finished a dry hole two miles up the creek from Dew Drop, on the Anderson Farm. On the 10th of November, Varney & Co. added a dry hole to the list in this section. It is located on Campbell Run, northeast of the pool. At the present time, the largest amount of new work is found north of State Line, on the Enterprise Transit Co.'s tracts, and the Van Campen property, on Chipmunk Run.

The pipe line runs, which show the amount of oil taken from the wells, demonstrate to a certainty that the Allegany production has remained almost a constant quantity during the summer and fall campaign. While Allegany shows four-tenths of the volume of new work and her aggregates of rigs and drilling wells make the bearish feature in the monthly report, her daily production has remained practically unchanged. This is the test which discloses her attitude toward the oil trade. It was estimated that the field, exclusive of the South Alma section, whose outlines remain to be determined, covered an area of 18,000 acres. There were more than 3,000 producing wells on this area on the first of November. With the exception of the South Alma section, which at the present writing is not connected with the principal development, one well has been drilled to every six acres of territory in the field. Oil men are free to admit that it is not profitable or policy to drill more than one well to every five acres.

On lot 20, in Clarksville, Sawyer & Co have completed a dry hole since the first of the month. A small amount of drilling will be done in the section south of Clarksville, with the view of outlining a small pool whose axis extends in a northeasterly and southwesterly direction across lot 27. On lot 50, Scio, the Union Oil Co. are drilling near the northern limit of the development at the end of the field. The drilling in South Alma about Pikeville and around the Howard, O'Connor and Shanley well on lot 106 is all that there is of an experimental nature in progress. At last accounts the well on 106 was producing six barrels. C. F. Allen & Co.'s well on the northwestern corner of lot 85, and Shirley's well on lot 110, each about half a mile distant from the well on 106, will be important

tests for the country east and northeast of the Howard, O'Connor & Shanley well.

Torpedoes are now being put in wells in this field at a very low price. Everything is furnished and only fifty cents a pound is charged for the glycerine. Shots of a heavy calibre are used.

Salt water and fresh water are proving troublesome about Henry's Switch and at other points in the field, rendering the sucker rod a more important factor each month. On the flats below Richburg huge pumping rigs are being erected. By the use of sucker rod connections a large number of wells can be pumped at one time and at a comparatively small expense. For several months there is but little chance for anything to happen to break the monotony of the story which is told of the Allegany field. Its production should have the distinguishing characteristics of a constant quantity until the drill is travelling at a slower pace.

A well in the northwestern part of Tioga county, Pa., drilled by Carroll & Gregory has attracted some attention during the past month. The Westfield well and others drilled in this section, quite remote from the Carrol & Gregory well, have afforded very slight indications of a possible field in this locality. In order to take advantage of any fortunate opportunity there, operators have leased and secured options on lands in this nook of the Keystone State. Hydrick Bros. have secured 3,000 acres of land near Hinsdale, N. Y., and are drilling a well on the Lincoln estate. Coast and others will drill a well near Franklinville, N. Y.

WARREN AND FOREST.

Warren and Forest counties still present the most inviting fields for the wildcatter and in various sections a small amount of experimental work is under way. The wide vertical range in which oil sands are found in these counties lends a charm to that alluring game of chance known as wildcatting. Since the Wardwell strike the crude explorers have been scanning the more northerly of the townships in Warren county. The test wells drilled about Irvineton did not result in profitable producers, although a showing of oil was obtained in both the McKinney and Johnson & Co.'s wells. At Wardwell's Ferry, on the Allegheny, a row of derricks stands on either side of the river. While the development has not extended in a northeasterly or southwesterly direction, it has been carried far enough easterly and westerly to give the pool or streak a width. Up to the present writing

the drill has disclosed the fact that the width will be less than a quarter of a mile. The King & Magee well, on the north bank of the Allegheny, and due north of the Rhodes No. 2, tapped the sand about noon, October 22. The first 24 hours the well did 75 barrels. It failed to produce as largely as first indications warranted when the sand was tapped, and on the first of the month had declined to a 20 barrel gait. The Rockland Oil Company's No. 2, finished November 8, is a small producer.

Operations at Stoneham, Clarendon and Tiona were found November 1st about as they were October 1st. The striking of oil in the Cherry Grove sand, which underlies the Clarendon sand, and is about 120 feet below it, caused some excitement, but nothing has since been developed of a character likely to depress crude values. Of the wells which have been drilled to the Cherry Grove sand west and south-west of Clarendon, those of C. A. and D. Cornen, on lot 556, have made the best showing from this sand. This Cherry Grove sand has been discovered at Irvineton, in the McMullen well, at the test well of Shaw Brothers & Green, on lot 573, Watson township; on lot 608, Cherry Grove, and at other wells in the immediate vicinity of Clarendon. Since oil was found in this sand at the Cornen well, on lot 608, operators have been looking for a streak parallel with and west of the famous Cherry Grove pool. A dry hole has been drilled 1,600 feet northwest of the two-barrel well on lot 608. The dry hole on lot 583 destroys the chances of running the crude currents from the well on lot 608 to those on lot 556. When an AGE representative last visited the Cornen wells, on 556, they were unable to make them flow, and they would not pump. If the oil is there in paying quantities the difficulties in the way of raising it to the surface will soon be obviated. A long ways to the southwest, New York parties are drilling a well on lot 650. Back from the P. & E. railroad, toward the headwaters of the different streams which increase the volume of the Tionesta, there remains considerable light territory untested and undrilled where it is known to be good. On Dutchman's Run a dispute over 600 acres has caused the whole tract to remain untouched by the drill until an adjustment of difficulties can be made.

Horton & Co are drilling a well in the town of Sheffield, and other parties are drilling one for gas in the vicinity of Ludlow. Since July 1 the production of the Cooper tract has ranged between 3,066 and 4,142 barrels. On the 9th of

November the scouts were absent and the regular gauge was not taken. A careful estimate made it at least 3,500 barrels from 134 wells. One peculiarity of the Cooper district is the tenacity of the wells in responding to shots. The time will come when the gushers will refuse to be quickened by the explosive compound, and then the decline of the old wells cannot be made up. From this date on it is reasonable to expect that Cooper Hill will show less of a decrease in production than the Balltown field. The seven wells completed during the month of October had a production on the last day of the month of about 657 barrels. The fourteen wells finished in September were producing 919 barrels October 1st. Since the first of the month the Story & Adams well, on lot 398, has been drilled below the level of the second, or gas sand. Oil was found in the third, or Cooper sand, and while the well will not pay as a producer, it is of importance as an indicator of what may exist to the east or west of the well. The McCalmont Oil Company are interested parties, and under their instructions the casing will be pulled and the well abandoned. The last well drilled by Shank & Emery, at the southwestern end of the Sheffield development is an unusually good strike. There were a few operators bold enough to figure on a connection between the Sheffield and Cooper pools. They conclude that there is room for a belt to pass either east or west of Henry's Mill. Time and the center bit give a verdict on all theories, from which there is no appeal. On the east side of the Tionesta, and northeast of the Blue Jay wells, the Blue Jay Oil Company are drilling their No 3 well. At this writing, November 13, the drill must be nearing the interesting point. South of the Cooper tract, on the Enterprise Transit Company's lands, Fertig & Henne completed a well which had a yield of 25 barrels on the last day of October. It is southwest of a good well on lot 5, of the Cooper, and is a center shot between a light well to the east and one to the west. The McCalmont Oil Company are seeking to prolong the third sand streak upon which the Reno well is situated, to the northeast. Their No. 14 well was drilled fifteen feet into the third sand November 7th. The first twenty-four hours it registered 150 barrels. It gauged 55 barrels on the 13th. They are locating wells east of a belt line running from this well to No. 7. Around the old Reid & Brenneman well, on lot 440, dry holes exist on three sides. There remains an open space to the northeast, where

the McCalmont Oil Company now have their No 16 well drilling for the second sand. Operators are hastening the time when every outlet around the Cooper district will be closed. From present appearances there is more room to drill here than at Balltown.

BALLTOWN.

Professor J. P. Leslie, Chief of the State Geological Survey, in transmitting John F. Carl's comprehensive and valued work on the geological survey of Warren county to Governor Pattison, writes as follows concerning white sand pools:

"The recent discovery of an abundance of oil stored away in a small area south of Warren, which produced so disastrous an excitement and added such a pile of fuel to the gambling fire of the oil exchanges, seemed at first to overthrow the scientific conclusions of the survey. But the small extent and rapid exhaustion of this pool of oil have shown the soundness of our acquired knowledge; for it is merely a repetition of what has happened before and may happen again. It is not from such local pools that the vast demands of trade are supplied. Spurting and flowing wells are no longer marvels of nature calculated to upset the principles of geology, and therefore, to let loose the demon of unreflecting speculation upon the community. The figures given in this report will satisfy reasonable people that such events are mere ripples on the stream of oil production; and if they affect the market are made to do so by the shrewd and heartless monopolists for their own purposes. It is equally manifest that violent fluctuations of the market would be impossible but for a still prevalent ignorance of the geology of petroleum and an equally prevalent epidemic of the gambling spirit."

When the shell which caps the porous white sand of the Balltown pool has been broken at three or four more wells the tireless scout for a time will cease to be a shining light in Balltown society. When he is far from the lone by-paths and sombre hemlocks of the winding Tionesta he may take a retrospective glance over Balltown history, and put this pool on the "fretful Porcupine" to the common sense test of figures. As he recalls the man who asked him if Bill Shakespeare run a saloon at Gusher City, he will think of this midsummer day dream of the oil trade, and perhaps say, "What fools these mortals be." There were no changes in the outline of the Balltown development during October. Only

the theoretical line which has been penciled around the northeastern end of the field was confirmed by the drill. There appears in sight two square miles, or 1,280 acres of territory, which will produce about as much oil to the acre as an area of the same dimensions in the Bradford field. This development is oversized in its importance, and has been given too much weight by the trade. Sum up the production of the Balltown field, and when it is drained the total will be lost in the stocks which have accumulated in other sections which have passed unnoticed, while they were giving up their yield of oil. Only last week the speculative sea was struck with a dead calm, while the indefatigable Murphy traveled leisurely from Philadelphia to Balltown to open up a well which produced 12 barrels the fourth hour. The eventful opening of the well has been duly chronicled by the great dailies of the metropolis, and the news has been flashed under the sea to Antwerp. The German peasant girls have probably heard of it, and are trembling lest they shall be obliged to sell their beautiful hair to procure funds with which to buy dear oil to light up the pages of German literature during the long winter evenings. The Duke & Harris well, on lot 744, and the Vandergrift & Miller well on 731, made a dusty record. Porcupine No. 14, about 800 feet west of No 11, and 2,000 feet west of the northeastern corner of lot 3,194, produced 25 barrels the first hour, and 12 barrels the fourth. The drill has passed through the sand, and the well is demonstrated to be much lighter than was expected. May Kelly & Grandin's No. 17, on warrant 5,236, was opened toward the close of October, and drilled deeper about the first of November. On the third of November it was producing over 400 barrels. The firm who swore off on drilling for the winter, Rip Van Winkle-like, are going to try one more well 50 rods southwest of No. 17, on the south side of the Tionesta. The oil is found so deep in the sand at these wells at the southwestern end of the field that observers conclude that they are nearing the end of the pool. With the exception of the May, Kelly & Grandin, No 19, at which the drill will be started as early as the 19th, there are no wells in the Balltown section which should disturb the equilibrium of the mental forces of the average producer or speculator. The thirteen new wells finished in the Balltown field during September had a production October 1st of 2,216 barrels. The nine added in October had a daily yield on or about the first of November of about 845 barrels. There was a

decrease in new production of 1,371 barrels. In three monthly reports the oil region press failed to make this decrease conspicuous, and manipulated their figures in such a manner as to avoid giving this bullish feature the proper showing in their monthly statements. The gauges can be obtained from the books of the few companies who control the field, and this statement put to the test if any doubts concerning its correctness are entertained by interested parties. A bearish report October 1st made bullish, necessarily made the true figures too bearish November 1st, and the decline was not thrown on the producers' side of the market. Mr. B. A. Tupper, in writing of this field November 11th, said:

"The Balltown production on Saturday was about 3,450 barrels from 59 wells. The two wells completed this week were the Porcupine Oil Company's Nos. 13 and 14. To-day No. 13 is producing 250 barrels. It is about six feet in the sand and will probably be raised to 600 or 700 barrels temporarily when it is drilled deeper. Porcupine No. 14 is fifteen feet in the sand, and undoubtedly has all her oil. Howe Oil Company's No. 8 was drilled about four feet in the sand Saturday night and produced 108 barrels the first hour. Its yield for the first 24 hours was 1,050 barrels. It is declining rapidly and will continue to do so, as it has wells on three sides of it that have been down for some time. Gaily & Murphy's No. 4, lot 3,133, was drilled six or seven feet into the sand. It began flowing steadily at 8:30 Sunday morning. It did 90 barrels the first hour and 50 barrels the fourth. The well is very gassy, and as it is located only 300 feet from No. 1 is not expected to hold up. It will probably do from 600 to 700 barrels the first 24 hours. There are three wells drilling in this field, and four rigs up and building, which will be drilled. Gartland will move his rig on the northwestern corner of lot 3,195, and not drill a well where it now stands. Porcupine Oil Company's No. 15 is fishing at 150 feet. They may be forced to abandon the hole and move the rig. Porcupine No. 12 and Balltown Oil Company's No. 15 will not be in before the last of the coming week. May, Kelly & Grandin's No. 19, 50 rods southwest of No. 17, and on the south side of Tionesta creek, is rigging up, and the drill will be started the latter part of the coming week. May, Kelly & Grandin's No. 17 was drilled through the sand on Friday, and is flowing by heads from 220 to 240 barrels per day. The whole field is weakening, and it will be plainly seen as soon as the wells now drilling

are completed. Nearly all the wells in the Balltown district have been shot, and some of them three or four times."

PASSED AWAY.

The genial, kindly face of Patrick Dorsey will be seen no more on earth. He died in Socorro, New Mexico, October 22, of consumption. His remains were brought to Millerstown, Butler county, his former home, and interred in Sugar Creek cemetery. In life, occupying a prominent position as banker and producer, he was always the true gentleman and trusted friend.

Charles W. Ball died Thursday evening, October 4, in the 36th year of his age. Although consumption had marked him for the grave many months ago, and his death was not unexpected, yet it came like a shock to many friends, after all. It is said he had not an enemy in the world, and a wide circle of business acquaintances and personal friends will sadly mourn his departure. He was junior member of the brokerage firm of Loomis & Ball, and, coupled with his death, we have the sad duty of chronicling that of his partner—

Harry Loomis, who died in Pittsburgh, Thursday evening, Nov. 1st, in his 32d year. He formerly resided in Oil City, where he married Miss Kitty, daughter of Capt. J. J. Vandergrift. From the Oil City Exchange resolutions we take and append the following:

Resolved, That in the death of Harry Loomis, this Exchange loses a valued and valuable member, and the community a business man of unimpeachable integrity, worth and probity.

Resolved, That the quick re-uniting in the chambers of death of two young men of such moral and intellectual excellence as Charles W. Ball and Harry Loomis, partners in business, is more than a mere coincidence, and points to a wise although inscrutable purpose of Divine will.

Wellsburg, West Virginia, is to have a glass factory, operated from the wells of natural gas in that vicinity. W. B. and A. Dalzell, with E. D. Gilmore, have formed a company with \$35,000 capital, and expect to have everything ready for business by January 1st, 1884.

The Building Inspector of Pittsburgh has issued a permit to Captain J. J. Vandergrift for the erection of a brick building on Fourth avenue, to cost \$69,650 to be used as an Oil Exchange.

NOVEMBER OPERATIONS.

THE ENTIRE REGION,—WELLS COMPLETED, WELLS DRILLING, AND RIGS UP AND BUILDING.

WELLS COMPLETED.

Allegheny Field.

Scio.

Owner.	Barrels.
Lot 1 Manhattan Oil Co, No 3	10
1 Lovell & Rumsey, No 5	15
1 Lovell & Rumsey, No 6	15
1 Lovell & Rumsey, No 7	15
1 Lee & Apple, No 2	10
1 Lovell & Day, No 7	15
2 S E Young & Co, No 19	8
2 S E Young & Co, No 20	10
2 S E Young & Co, No 21	15
2 Neff, Straight & Hostetter, No 15	10
2 Coast Oil Company, No 24	12
2 Coast Oil Company, No 26	10
2 Coast Oil Company, No 27	10
2 Farrel & Snyder, No 6	12
2 Farrel & Snyder, No 7	12
2 Nameless Oil Co, No 3	10
2 John O'Shea	est 5
3 W H McMullen & Ellsworth, No 2	6
3 W H McMullen & Ellsworth, No 3	6
3 Frank Campbell, No 1	est 8
3 Frank Campbell, No 2	est 6
3 H Stewart	2
3 Straight & Hostetter, No 3	8
3 Straight & Hostetter, No 5	8
3 Greenlee & Anderson, No 3	12
3 R Carroll, No 2	12
3 R Carroll, No 4	12
50 Union Oil Co, No 1	6
Wells	28
Production	280

Abma.

Lot 2 Hazelwood Oil Co, No 6	5
2 Church & Whitcomb	est 8
3 Straight & Hostetter	dry
3 Richardson & Co, No 2	12
4 Whitnall & Lord, No 2	15
4 Matson & Thompson, No 5	12
4 Chamberlain & McDonald	6
17 Manning Bros	10
17 Carlin Bros & Co, No 3	15
17 New Milford Oil Co, No 2	10
17 J H Thornton	12
17 Col Scott	6
18 Manhattan Oil Co, No 5	12
18 Manhattan Oil Co, No 6	12
18 G M Barnev	est 10
20 Willets, & Duke, No 2	12
20 Straight & Hostetter, No 3	12
20 Masters & Co	10
21 Riter & Conley	5
21 M Finnegan	15
21 M Finnegan	15
21 Cochran Bros, No 3	6
21 Cochran Bros, No 8	15
21 Cochran Bros, No 10	12
21 Bennett & Co, No 3	12
24 Vance & Co	12
24 Vance & Co	12
24 Koch Bros	est 8
40 Duke & Norton Oil Co, No 42	5
123 Wm Steele	est 3
138 Sanger & Co	dry
140 Anderson & Rauber	4
142 Canfield & Co, No 1	8
142 Crandall & Parker	8
Steuben County, Brown Farm Oil Co	dry
Wells	35
Production	319
Dry	3

Wirt.

Lot 1 Straight & Hostetter	gas
17 Riley Allen, No 3	10
34 Wellman, Miner & Fuller, No 13	15
— Smith & Co	5
41 Dykeman & Co	est 5
41 Gardner	5
Wells	6
Production	40
Dry	1

Bolivar.

Lot 4 Carlin, Russel & Co, No 1	6
6 Star Oil Co, No 11	10
6 Star Oil Co, No 12	12
6 Baldwin, McCoy & Veeter, No 7	10
6 Summit Oil Co	10
7 Coast Bros, No 8	12
7 Coast Bros, No 9	12
7 Coast Bros, No 12	10
7 Coast Bros, No 14	10
7 McDonell & Co, No 2	8
7 J D Downing, No 2	10

7 J D Downing, No 3	10
7 Coast & Lego, No 2	est 8
7 A J Applebee	est 8
7 W & J Duke, No 8	10
7 W & J Duke, No 9	8
8 Hazelwood Oil Co, No 7	6
8 Hazelwood Oil Co, No 8	10
8 A A Hopkins, No 11	8
8 A A Hopkins, No 12	10
15 Wellman, Miner & Co	4
15 A L Robinson & Co	est 8
23 C C Conroy & Co, No 2	10
24 H M Ernst	8
24 H M Ernst	8
24 C B Williams	est 8
31 Empire Gas Co, No 5	6
31 Fisher Oil Company, No 6	12
31 Fisher Oil Company, No 7	6
31 D E Fritts, No 8	12
33 P Parker	dry
38 Hanley & O'Shea, No 13	6
38 L H Ballard, No 4	5
45 Crocker & Ryan, No 4	8
63 Ramsey & Conklin, No 3	12
63 Columbia Oil Co, No 12	est 10
63 Columbia Oil Co, No 13	10
Wells	37
Production	321
Dry	1

Clarksville.

Lot 9 McManus	8
9 P T Kennedy, No 4	7
9 P T Kennedy, No 5	8
9 P T Kennedy, No 11	6
9 Clark & Davis	2
17 J W Davis & Co, No 13	est 12
Wells	7
Production	43

Genesee.

Lot 6 Rollin Dow	5
7 Dow & Vincent	10
7 S H Merriman, No 3	8
7 S H Merriman, No 4	10
81 Willets, No 44	15
81 Willets, No 47	15
14 Chauncey Oil Co, No 6	25
14 Chauncey Oil Co, No 24	5
14 Brown & Armstrong	est 8
14 J B Bradley, No 1	dry
14 J B Bradley, No 2	5
14 Strickler & Co	est 10
14 Durkee, Clark & Co	est 8
15 McCalmont Oil Company, No 42	5
15 McCalmont Oil Company, No 43	14
16 A T Palmer	5
221 Willets, No 2	5
221 Willets, No 3	5
23 Hughes & Conghlin, No 7	6
23 Dean Oil Co, No 10	20
23 Dean Oil Company, No 14	15
23 Dean Oil Company, No 12	20
23 Coss Oil Co	5
31 H L McMullen, No 20	15
31 H L McMullen, No 21	10
31 John W Davis & Co	12
Wells	26
Production	241
Dry	1

Bradford Field.

East and West Branches.

Farm.	Operator.	Depth.
Bingham, G H VanVleck, No 23		10
Bingham, lot 168, R J Straight, No 6		9
Bingham, lot 152, Forest Oil Co		18
Bingham, Bayne, Fuller & Melvin		12
Fox, Barnsdall & Shaffner		12
Fox, Barnsdall & Co, No 2		12
Fox, Roth, No 2		8
Fox, Caldwell, Hamsher & Co, No 1		7
Dent, P C L & P Co, No 49		12
Dent, P C L & P Co, No 50		15
Dent, P C L & P Co, No 51		10
Dent, Whitney & Wheeler, No 30		10
Watrous, McCray Brothers, No 11		8
Hawkins, P C L & P Co & P T Kennedy		10
Hawkins, Union Oil Co, No 12		12
Freeman, Leopold		8
Smith, P T Kennedy, No 10		10
Taylor, Atlas Oil Co, No 4		8
Terry, (Tuna Valley) P C L & P Co		5
Rutherford, Bradford Oil Co, No 25		12
Rutherford, Bradford Oil Co, No 26		12
Fuller, American Oil Company, No 21		10
Kissam, Beach, Atwater & Co, No 2		10
Sullivan, Thomas Tait, No 6		10
Sullivan, J M Tait, No 6		10

Quintuple.

Lot 147 L E Hamsher & Co	10
187 Jennings & Co	est 10
Wells	27
Production	280

Kendall Creek.

Berger, P T & W C Kennedy, No 4	8
Moore, Turner & Co	12

Turner, W D Jayne	est 8
Sill, Howe & Co, No 10	10
Schoonover, Amm, Seep & Co, No 8	10
Irons, D P Carter	5
Duke, Suhr & Schopperlee	10
Duke, Duke & Durn	2
John Duke, Henshaw & Brown	4
Taylor, Clark & Hanna	5
Bingham, (Doc Hollow) R M Waugh	12
Wells	11
Production	86

Foster Brook.

E T Co, H L Blackmar, No 6	20
E T Co, F W Mitchell, No 7	15
E T Co, F L Blackmar & Post	est 20
Willets, Young & Willets, No 22	12
C B & H, Crippen & Kittenger	10
Lower Herdick, John J Carter, No 3	6
C B & H, Chauncey Sharp	8
C B & H, Coldren & Wolf	8
Wells	8
Production	99

Four Mile.

Van Campen, Merrill & Perrin	est 10
Van Campen, George Van Campen sr	10
Van Campen, Jones & Nelson	10
Van Campen, W M Brown	12
Johnson, Russell & Co, No 5	12
Volkel, Franchot Bros, No 4	10
R Moultrons, John Coast	10
Stevens, J H Hughes	8
Waters, Carrol Bros	8
Sparger, Wyant & Chamberlain	est 10
Davis, Weiser & Durkee	2
Carroll, J Carroll	8
Wells	12
Production	110

Indian Creek.

Henry Loup, White & Lavens	3
Pine lot, Reed & Brown, No 3	5
Pine lot, R G Bailey, No 6	10
Meeks Creek, Gaily Bros & Co, No 50	est 12
Indian Creek, Suhr & Justus, No 10	6
Loup, Hazelwood Oil Co, No 38	8
Loup, Hazelwood Oil Co, No 39	8
Loup, Hazelwood Oil Co, No 40	10
Dodge, Shear Bros, No 2	3
Barse, Union Oil Co, (Forman agt) No 29	15
Campbell, Forest Oil Co, No 5	6
Simms, Bradford Oil Co, No 27	10
Simms, Bradford Oil Co, No 28	10
Simms, Bradford Oil Co, No 29	10
Simms, Bradford Oil Co, No 30	10
Simms, Bradford Oil Co, No 37	10
Simms, Bradford Oil Co, No 42	10
Campbell, Bligh & Waugh, No 2	5
North Branch, J D Downing, No 26	6
North Branch, J D Downing, No 30	6
North Branch, J D Downing, No 31	6
North Branch, J D Downing, No 33	7
North Branch, J D Downing, No 37	6
Keating, Forest Oil Co, No 41	est 10
Wells	24
Production	192

Cole Creek.

Bingham, Forest Oil Co, No 26	12
Bingham, McKean Oil Co, No 43	est 10
Bingham, Johnson & Co, No 118	15
Lot 571 Union Oil Co, No 21	30
538 Union Oil Co, No 20	20
Bingham, John McKown	50
Wells	6
Production	137

Kinzua.

Lot 3077, Union Oil Co, No 46	25
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Kinzua Village.

Anderson, Eaton & Budey	dry
Archibald, Brown & Co	8
Falconer, J H Markham, No 2	6
Campbell, Porter & Couley	6
Campbell, Bradford Oil Co, No 4	4
Hoffman, Beardsley & Co	dry
Sugar Run, (Warrant 3710), R R Armor	dry
Wells	8
Production	49
Dry	3

Warren and Forest.

Glade and other Towns.

Tract.	Owner.	Production.
Wardwell reserve, Rhodes & Co, No 2		50
Wardwell reserve, K H McBride, No 3		dry
Island, Verback, No 1		dry
Bowers, King & McGee		20
Clark, O Hoffman		2
Clark, S S Fertig		dry
Sutter, P M Smith		8
Scofield, A H Daniels, No 4		8
McMullen Lease, McKinney & Co		dry
Asylum, H A Jamison & Co		dry
Wells		10
Production		88
Dry		5

Clarendon.

Lot 35, Smith & Son	5
53 Union Oil Co.	5
55, Beatty, No 27	10
79, Adams & Story	10
105 Shugart & Co.	10
106, Lapham & Co, No 11	3
162, J T Beatty	3
463, Schermerhorn & Co.	dry
464, Smith & Son No 7	8
465, Benedict, No 8	5
465, Benedict, No 9	8
498, E O Emerson, No 7	12
498, F M Pratt	4
498, S W Harley, No 4	15
498, Mooney & Griffin, No 1	5
498, Conway & Gandy	est 10
527, Tannery Oil Co, No 8	5
527, Book & Rhodes, No 3	5
529, Aiken	6
529, Story & Adams	6
530, Whitehill & Co, No 3	gas
556, C A & D Conren, No 3	est 10
556, C A & D Cornen, No 4	est 5
Stonehill, Smith, Conklin & Co.	10
Wells	24
Production	160
Dry	2

Tiona.

109, Kervin & Co, No 4	6
109, Patterson & Staley, No 1	10
159, Clark & Foster, No 1	6
159, Clark & Foster, No 2	6
159, Clark & Foster, No 3	6
159, Clark & Foster, No 4	6
160, J S Patterson, No 3	10
160, Hill & Co	10
160, Helm & Mealey	est 8
165, Pagett & Conley	10
166, Fertig & Henne, No 13	7
200, W Ballard, No 5	12
205, Adams, O'Donnell & Co	5
205, Halleck & Pratt, No 6	est 5
313, Vandergrift, Murphy & Co	dry
Wells	15
Production	107
Dry	1

Cooper.

E T Co, (south Cooper) Fertig & Henne, No 3	25
E T Co, (east Cooper) Fertig & Henne, No 4	2
Cooper, Anchor Oil Co, No 22	115
Henry Lands, Syndicate, No 5	40
Henry Lands, Syndicate, No 10	95
Henry Lands, McCalmont Oil Co, No 12	250
Lot 3193, M W S & Co & U O Co, No 23	130
Wells	7
Production	657

Balltown.

5236, May, Kelley & Grandin, No 16	20
5236, May, Kelley & Grandin, No 17	420
4821, Balltown Oil Co, No 12	20
4821, Balltown Oil Co, No 14	75
4792, Howe Oil Co, No 10	200
4792, Howe Oil Co, No 11	10
4792, Howe Oil Co, No 13	100
731, Miller, Odell & Co	dry
744, Duke & Harris	dry
Wells Completed	9
Production	845
Dry	2

Lower Country.*Venango.*

Tract.	Operator.	Depth.
Boyle, Roess Bros		12
Boyer, Wolf & Kugler		10
Echols, Judd, & Co		5
Hughes, Richardson & Co		5
R Hughes, Shaffer & Duffield		10
G Flinchbaugh, Dale Bros		25
J C Reinbold, Dale & Smullin		225
Morrison, Phillips & Adams		dry

Vicinity Emlenton.

Hagerty, Hagerty & Co	3
McCullough, Porterfield & Co	4
Kepler & Hyde, Griffin & Co	2
Wells	11
Production	301
Dry	1

Clarion.

Hearse, Jacob Hahn	dry
Updegraff, Atwater & Co	5
Wells completed	2
Production	5
Dry	1

Butler and Armstrong.

Weber, P Schmick	10
Black, James Rabbitt	5
B B Campbell, Dennison & Hoyt	dry
Bresleau, Hock Bros & Co.	dry
Seybert, Timberlin & Co	dry

Dorkins, J H Coe & Co	dry
Pontius, Hunter & Cummings	15
Rickett, D Burns	10
Leonard, Leonard & Co	5
Morrow, Westerman Bros	7
Riddle, Iman & Kean	dry
Wells	11
Production	52
Dry	5

DRILLING WELLS, RIGS UP AND BUILDING.**Allegheny Field.**
Scio.

Owner.	Depth.
Lot 1 Manhattan Oil Co, No 4	1000
1 Manhattan Oil Co, No 5	rig bldg
1 Lee & Apple, No 3	450
1 Lee & Apple, No 4	rig bldg
1 Lee & Apple, No 10	rig bldg
2 Allen & Morse, No 1	800
2 Allen & Morse, No 2	500
2 Allen & Morse, No 3	rig
2 Waco Oil Co, No 4	(old) rig
2 Waco Oil Co, No 5	rig
2 Waco Oil Co, No 3	sand
2 Straight & Hostetter, No 16	sand
2 Straight & Hostetter, No 17	750
2 Straight & Hostetter, No 18	drilling
2 Straight & Hostetter, Allentown	850
2 Coast Oil Co, No 9	drilling
2 Coast Oil Co, No 21	rig
2 Coast Oil Co, No 25	drilling
2 Coast Oil Co, No 28	rig
2 Farrell & Snyder, No 8	rig
2 Farrell & Snyder, No 9	rig
3 J R Morse, No 1	600
4 Minnow Oil Co	rig
4 Minnow Oil Co	rig bldg
4 O P Taylor (old)	rig
11 Greenlee & Anderson, No 5	drilling
11 R Carrol, No 3	100
11 R Carrol, No 4	rig
11 Mrs S M Carrol	400
12 Fenton & McConnell, No 1, fish- ing	175
12 Riley Allen & Co	800
12 Riley Allen & Co	rig
50 Union Oil Co, No 2	800
50 Union Oil Co, No 3	100
50 Union Oil Co, No 4	rig
50 Union Oil Co, No 5	rig
New rigs	15
Old rigs	2
Wells drilling	19
Total	36

Alma.

Lot 1 Phillips Bros, No 8	sand
1 Phillips Bros, No 9	rig
4 Carlin & Russell, No 5	200
4 Crane & Odell (old)	rig
4 Richardson & Co.	1000
4 McEnro Bros	rig
4 Matson & Thompson, No 6	sand
4 Matson & Thompson, No 7 (old)	rig
4 Matson & Thompson, No 8	rig bldg
4 Fertig Bros, No 3	1300
4 Fertig Bros, No 4	rig
4 Charles Taylor, old	rig
4 Chamberlain & McDonald	drilling
4 Chamberlain & McDonald	rig
17 Carlin Bros & Co, No 4	sand
17 New Milford Oil Co, No 3	300
17 New Milford Oil Co	rig
17 Manning & Co, No 3	300
18 Patty & Alshouse, No 8	drilling
18 Patty & Alshouse, No 5	rig bldg
18 Manhattan Oil Co, No 7	800
18 Manhattan Oil Co, No 8	500
18 Manhattan Oil Co, No 9	rig bldg
18 Manhattan Oil Co, No 10	rig bldg
20 Willets & Lovell, No 14	900
20 Willets & Lovell, No 15 (old)	rig
20 Straight & Hostetter, No 5	900
20 Straight & Hostetter, No 6	450
20 Straight & Hostetter, No 7	rig
20 Straight & Hostetter, No 8	rig
20 Straight & Hostetter, No 9	rig
20 Willets & Duke, No 3	400
20 Willets & Duke, No 5	1100
20 Willets & Duke, No 6	800
20 Willets & Duke, No 7	rig
21 Riter & Conley, (old)	rig
21 M Finnigan	1100
21 M Finnigan	900
21 M Finnigan	800
21 M Finnigan	rig
21 M Finnigan	rig bldg
21 Cochran Bros, No 6	rig
21 Cochran Bros, No 7	sand
21 Cochran Bros, No 11	600
21 Cochran Bros, No 12	rig
23 Dow & Browning No 4	700
23 Dow & Browning No 5 (old)	rig
24 Vance & Co.	drilling
24 Vance & Co.	drilling
24 Vance & Co.	rig
24 Koch Bros (old)	rig
24 Sutherland & Co	sand

24 Sutherland & Co	rig bldg
24 W F Jones	rig
24 Flannigan & Cheeseman	drilling
24 Flannigan & Cheeseman	rig
28 Harding & Derrickson, fishing	500
38 Taylor, Barton & Smith, No 7	rig
38 Taylor, Barton & Smith, No 8	rig bldg
38 Weiser & Co	2 rigs
38 Carlin & Co	rig
39 Duke & Norton Oil Co, No 41	1000
39 Duke & Norton Oil Co, No 43	rig
39 Duke & Norton Oil Co, No 44	rig bldg
39 Baldwin, McCoy & Weiser, No 4	drilling
40 A T Palmer, No 4 (old)	rig
40 A T Palmer, No 5	rig bldg
54 F M Leaseure	600
73 Willets (shut down)	800
80 Chas Rathburn	rig
85 C F Allen & Co	100
100 Mosher & Reddy Bros	600
100 Mulkin	drilling
103 Alma Oil Co	900
110 Shirley	400
120 Finnigan & McBride	250
123 Patty & Alshouse	700
124 Manhattan Oil Co	rig
142 L Willets	900
142 Crandall & Parker	400
142 H Stewart	rig bldg
142 Bolivar Oil Co	rig bldg
New rigs	33
Old rigs	8
Wells drilling	42
Total	83

Wirt.

Lot 1 Lee & Apple, No 1	450
17 Riley Allen No 1 (old)	rig
34 Wellman, Miner & Fuller, No 14	600
41 Smith & Co	rig
41 Gardner	rig
41 M C Mulkin	900
50 Empire Gas Co	sand
57 A J Thompson	rig
57 A J Thompson	drilling
57 A J Thompson	drilling
New Rigs	3
Old rigs	1
Wells drilling	6
Total	10

Bolivar.

Lot 6 Bunnell & Day	100
6 Bunnell & Day	rig bldg
6 Star Oil Co, No 8	rig
6 I Collins, No 2	1200
6 I Collins, No 3	rig
6 Summit Oil Co, No 4	300
7 McDonnell & Co, No 1	rig
7 McDonnell & Co, No 3	rig
7 J D Downing, No 4	950
7 J D Downing, No 5	rig
7 J D Downing, No 6	rig
7 J D Downing, No 7	rig bldg
7 W & J Duke, No 11	sand
7 W & J Duke, No 12	250
7 W & J Duke, No 13	rig
7 Coast & Sons, No 10	drilling
7 Coast & Sons, No 11	rig
7 Coast & Sons, No 16	rig
7 Coast & Sons, No 17	rig
7 Coast & Sons, No 18	rig bldg
7 Coast & Sons, No 19	rig bldg
7 Coast & Legs, No 3	drilling
7 Coast & Legs, No 4	rig bldg
7 A J Applebee	drilling
7 A J Applebee	rig
14 McCalmont Oil Co	sand
15 Wellman, Miner & Co, No 2	100
15 Wellman, Miner & Co, No 3	rig
15 Wellman, Miner & Co, No 4	rig
15 A L Robinson	rig bldg
24 H M Ernst	rig bldg
24 C B Williams & Co	drilling
24 C B Williams & Co	rig
24 L Emery Jr	500
24 Riley Allen, No 4	rig
24 Riley Allen, No 5	rig bldg
30 Hogan & Basch	sand
31 Johnson & Conroy, No 3	500
31 Johnson & Conroy, No 4	rig
31 Johnson & Conroy, No 6	rig bldg
31 Empire Gas Co, No 6	300
31 Empire Gas Company, No 7	rig bldg
31 Fisher Oil Co No 1	900
31 Fisher Oil Co, No 2	rig
31 Fisher Oil Co, No 5 (Miller F'm)	rig
31 Fisher Oil Co, No 6	rig
31 J H Hydrick, No 2	rig
31 D E Fritts, No 5	500
31 D E Fritts, No 6	250
31 D E Fritts, No 9	rig
38 Hanley & O'Shea	700
45 Crocker & Ryan, No 5	rig
45 Franchot Bros, No 14	100
63 H F Northrup, No 9	700
63 Columbia Oil Co	600
New rigs	32
Wells drilling	23
Total	55

Clarksville.		
Lot 1	I Willets, No 45	1200
9	Heuston & Brecht, No 4	rig
9	Heuston & Brecht, No 5	rig bldg
9	P T Kennedy, No 7	400
9	P T Kennedy, No 8	200
9	P T Kennedy, No 9	rig
17	W P McCleary	drilling
17	John W Davis, No 14 (old)	rig
18	Whipple Bros	500
18	Whipple	rig bldg
20	Love & Pentzer	drilling
26	Sawyer & Co	drilling
	New rigs	4
	Old rigs	1
	Drilling	8
Total		13

Genesee.		
Lot 6	Smith, Hill & Metcalf	drilling
7	S H Merriman, No 8	200
7	S H Merriman, No 9	rig
7	Ackerly & Barton (old)	rig
8	I Willets, No 48 (old)	rig
8	I Willets, No 49 (old)	rig
8	I Willets, No 50 (old)	rig
14	Chauncey Oil Co, No 16 (old)	rig
14	Chauncey Oil Co, No 20	700
14	Chauncey Oil Co, No 31	1200
14	Chauncey Oil Co, No 32	rig
14	Durkee, Clark & Co, No 4	drilling
14	Davis & Young, No 2	drilling
14	J B Bradley, No 3	rig
14	Empire Gas Co, No 4	drilling
14	Empire Gas Co, (old)	rig
15	McCalmont Oil Co, No 25	500
15	McCalmont Oil Co, No 26	rig
15	McCalmont Oil Co, No 28	rig
15	McCalmont Oil Co, No 29	rig bldg
15	McCalmont Oil Co, No 30	600
15	McCalmont Oil Co, No 31	rig bldg
15	McCalmont Oil Co, No 32	rig bldg
15	McCalmont Oil Co, No 44	1200
15	McCalmont Oil Co, No 45	sand
15	McCalmont Oil Co, No 47	rig
15	McCalmont Oil Co, No 48	500
15	McCalmont Oil Co, No 49	200
15	McCalmont Oil Co, No 50	rig bldg
16	A T Palmer, No 9	sand
16	Laney & Co, No 7	340
22	I Willets, No 4	100
22	I Willets, No 5	drilling
22	I Willets, No 6	drilling
22	I Willets, No 7	drilling
22	I Willets	3 rigs
23	Hughes & Coughlin, No 8 (old)	rig
23	Dean Oil Co, No 6	500
23	Dean Oil Co, No 8	420
23	Dean Oil Co, No 19	400
23	Coss Oil Co	rig
24	McCleary, No 6	1000
24	Armor & White	drilling
29	Wm Cranston (old)	rig
29	Miner, Wellman & Dean, No 2	1300
30	McCalmont Oil Co, No 24	rig
30	McCalmont Oil Co, No 30	300
30	Rosanna Wales	drilling
31	H L McMullen, No 22	50
31	H L McMullen, No 23	rig
31	H L McMullen (old)	2 rigs
32	Merritt & Childs	drilling
	New rigs	16
	Old rigs	10
	Drilling	30
Total		56

Miscellaneous.		
Potter County, Vaughn & Co	drilling	
Willing, Hatch & Co	rig	
Tioga, Carroll, Gregory & Co		1300
Hinsdale, Hydrick & Co		300
Franklinville, Olean parties	rig bldg	
Ontario County, Gibbs & Thyng		500
Rigs		2
Drilling		4
Total		6

Bradford Field.

East and West Branches.

Farm.	Operator.	Depth.
Bingham, G H Van Vleck, No 24		rig
Bingham, G H Van Vleck, No 25		200
Bingham, R J Straight, No 7		rig
Bingham, Forest Oil Co, No 12	rig bldg	
Bingham, Bayne, Fuller & Melvin, No 58		2000
Fox, Barnsdall & Shafner, No 3	rig	
Fox, Joseph Stettheimer, two	drilling	
Fox, Joseph Stettheimer	rig	
Fox, Joseph Stettheimer	rig bldg	
Fox, Roth, No 3		400
Fox, Roth, No 4		rig
Dent, P C L & P Co, No 52		600
Dent, P C L & P Co, No 53		200
Dent, P C L & P Co, No 54	rig hldg	
Dent, Whitney & Wheeler, No 31	drilling	
Dent, Whitney & Wheeler, No 32	rig	
Dent, Goettel Bros, No 21	drilling	

B I Taylor, Herrick & Suttle	drilling
McKean, Bayne, Fuller & Melvin, No 1	rig
Lewis Run, Whitney & Wheeler, No 6	400
Hawkins, P C L & P Co, & P T Kennedy, No 21	drilling
Beckwith, Beardsley (old)	rig
Craft, Roy & Archer, No 7	1200
Craft, Roy & Archer (old) No 8	rig
Craft, Roy & Archer No 9	rig
Nile, Bradford Oil Co (old)	rig
Reed, Bradford Oil Co (old)	2 rigs
Taylor, Atlas Oil Co, No 5	500
Taylor, Atlas Oil Co, No 6	200
Taylor, Atlas Oil Co, No 7	rig
Rutherford, Bradford Oil Co, No 5	400
Rutherford, H Jayne	1000
King, C Murphy & Co	drilling
King, Hall & Co	drilling
Fuller, American Oil Co, No 19	100
Fuller, American Oil Co, No 20	500
Kissam, Beach, Atwater & Co No 2	rig bldg
Kingsbury, Camp & Zane	850
Mack, Butts & Co	drilling
Mack, Fisher & Co	rig bldg
Wilson, West Branch Oil Co	drilling
McKellop, McClure & McKellop	rig
Forman, Harris & Co	rig
Wm Beardsley, Bronson & Curtis	1000
Hooker, Sherman	drilling
J R Clark, Clark & Hanna	400
Mullin Farm, Barnsdall	800

Quintuple.

Lot 25, E Strong & Co, No 2 (old) . .	rig
44, J W Humphrey (old)	rig
50, B F Brinton	500
110, L E Hamsher	600
110, L E Hamsher	rig
137, Campbell & Younkins, No 4 . .	1400
175, Atwater & Co	drilling
176, H A Booth	1500
181, H A Booth	rig
188 Jennings & Cummings	1200
195, W E Pickering	rig
207, Bradley	rig bldg
250, E T Howes (old)	rig
286, Jennings & Curtis	1000
New rigs	21
Old rigs	8
Drilling	35
Total	64

Kendall Creek.

Berger, P T & W C Kennedy, No 5	rig bldg
Moore, Westmoreland Oil Co, No 11	rig
Buchanan, McCray Bros, No 7	1000
E T Co, Chapin & Co, No 12	1000
Sill, McCray Bros, (old)	rig
Duke, Suhr & Schopperlee	drilling
Duke, Suhr & Schopperlee	rig
Moore, A S Palmer, No 7	rig bldg
Hamlin Fee, Benson & Kerney, No 6	drilling
T Straight, Walker & Co	rig bldg
Duke, Charles Duke	100
Bunker, H O Robbins	400
Chamberlain, Thompson & Lane	rig
Chamberlain, Postage Oil Co, No 9	200
Richardson, Munhall & Smithman	rig
Borden, Urquhart & Lavens, No 7	rig bldg
Borden, Bradley & Co	rig
Borden, Bryan & Hopkins	drilling
Borden, Shear & Braunschweiger	drilling
Thompson, Breese Bros	rig bldg
Norton, Clark	rig bldg
Melvin, P C L & P Co, No 77	drilling
Melvin, P C L & P Co, No 78	rig bldg
Shedd, P O Buchanan	rig

Foster Brook.

E T Co, E T Co, No 77	rig
E T Co, E T Co, No 78,	rig
E T Co, H L Blackmarr, No 7	800
E T Co, H L Blackmarr, No 8	600
E T Co, H L Blackmarr, No 9	rig
E T Co, F W Mitchell, No 8, (old)	rig
E T Co, F L Blackmarr & Post	250
E T Co, F L Blackmarr & Post	rig
Willets, I Willets	800
Willets, I Willets	rig
Willets, Young & Willets, No 23	rig
Willets, Willets & Young, No 13	100
Willets, O C Smith	rig
Angell Oil Co, Jas Smith (old)	rig
Angell Oil Co, Josett Bros,	drilling
C B & H Vandergrift & Miller No 4 (old)	rig
C B & H, Watson Oil Co, No 24	1700
C B & H, Watson Oil Co, No 25	rig
C B & H, Coldren & Wolf	drilling
C B & H, Coldren & Wolf	rig bldg
C B & H, Chamcey Sharp,	rig
C B & H, Frank Smith	500
C B & H, Frank Smith	100
New rigs	10
Old rigs	3
Drilling	10
—	
Total	23

Four Mile.

Van Campen, Wm M Brown	1200
Van Campen, Wm M Brown	1000
Van Campen, Wm M Brown	800
Van Campen, Wm M Brown	3 rigs
Van Campen, Wm M Brown	3 rigs bldg
Van Campen, Geo Van Campen, & Son	2 rigs bldg
Van Campen, Nelson & Jones	100
Van Campen, William Doe, fishing	700
Van Campen, Perrin & Co	200
Volkel, Franchot Bros, No 5	750
Zaph, Franchot Bros	2 rigs bldg
R Moultrons, John Coast (old)	rig
Stevens, Stevens (old)	rig
Joseph Waters, Griffin, Howard & Baum	rig
Waters, Moore & Coast	1000
Waters, Moore & Coast	rig bldg
Waters, Carroll Bros	rig
Two Mile, Waco Oil Co	drilling
Widow Carroll, C J Hickey	rig
Widow Carroll, C J Hickey	rig bldg
Widow Carroll, T Kervin	drilling
Widow Carroll, T Kervin	2 rigs
Widow Carroll, Collins	rig
Jake Waters, Howard	600
Stewart, Johnson	drilling
New rigs	18
Old rigs	2
Drilling	12
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Total	32

Indian Creek.

Henry Loup, White & Levens	rig bldg
Pine Lot, R G Bailey, No 7	sand
Pine Lot, R G Bailey, No 8	drilling
Shattuck, Emery Oil Co, No 6	900
Shattuck, Emery Oil Co, No 7	rig
Shattuck, Emery Oil Co, No 8	rig bldg
Meek's Creek (W & M lands) J L McK-	
Kinney & Co, No 3	drilling
Meek's Creek, J L McKinney & Co,	200
Meek's Creek, J L McKinney & Co	rig
Meek's Creek, J L McKinney & Co	rig bldg
Meek's Creek, Gailey Bros	200
Indian Creek, Suhr & Justus	500
Loup, Hazelwood Oil Co, No 41	drilling
Loup, Hazelwood Oil Co, No 42	drilling
Dodge, Shear Bros, No 3 (old)	rig
Dodge, Shear Bros, No 4	rig bldg
Barse, U O Co, Forman, agt	200
Barse, U O Co, Forman, agt	rig bldg
Cooper, Forest Oil Co, No 4	1000
Keating, Forest Oil Co No 42	drilling
Simms, Bradford Oil Co, No 38	600
Hamlin, Curtis & Davis	1000
Hamlin, Curtis & Davis	rig bldg
North Branch, J D Downing, No 38	900
North Branch, J D Downing, No 39	500
North Branch, J D Downing, No 40	
(old)	rig
North Branch, J D Downing, No 41	rig
North Branch, J D Downing, No 42	rig
Winchell, Morse & Allen	200
Keating, Forest Oil Co, No 42	drilling
Williams, Langdon	rig
Hill, Bovee & Duck, No 10	500
Hamlin, Brown Shafer & Co	50
Zimmer, Keystone Gas Co	rig
Keys, Windsor Bros	sand
Elling, Forest Oil Co, No 3	rig bldg
New rigs	13
Old rigs	2
Drilling	21

Cole Creek.

Bingham, Forest Oil Co, No 27	rig bldg
Rew, Capt E Frawley (old)	rig
Bingham, McKean Oil Co, No 44, (old)	rig
Bingham, Johnson & Co, No 119	900
Bingham, Johnson & Co, No 84	rig
Lot 494 Forman & Union Oil Co, No 9	400
418 Forman & Union Oil Co, No 21	600
Bingham, John McKeown	rig
Bingham, John McKeown	rig bldg
Lot 549, Union Oil Co, No 21	1300
549 Union Oil Co, No 22	600
549 Union Oil Co, No 23	rig
549 Union Oil Co, No 24	rig bldg
New rigs	6
Old rigs	2
Drilling	5
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Total	13

Kinzua.

3077, Union Oil Co, No 47	1800
3077, Union Oil Co, No 48, (old)	rig
3077, Union Oil Co, No 49	rig
3077, Union Oil Co, No 50	rig bldg
179 Bingham, P T & W C Kennedy	600
Bingham, H P Malone	1500
Sugar Run, Chapin & Co	rig

Kinzua Village.

Campbell, Porter & Conley, (old)	rig
Campbell, Porter & Conley	rig bldg
Lot 17, J Varney,	drilling

Geer, Hand & Co	rig
Jamison, Jamison	rig
Falconer, Book & Gartland	rig
Falconer, Book & Gartland	rig bldg
New rigs	8
Old rigs	2
Drilling	4
Total	14

Warren and Forest.

<i>Glade and Other Towns.</i>		
Farm.	Operator.	Depth.
Wardwell Reserve, Rhodes & Co, No 3		700
Wardwell Reserve, Rhodes & Co, No 4		200
Wardwell Reserve, Rhodes & Co, No 5	rig bldg	
Island, C W Verback, No 2		rig
Wardwell Reserve, Rockland Oil Co, No 2	sand	
Wardwell Reserve, Rockland Oil Co, No 3		500
Wardwell Purchase, Benedict & Robinson, No 1		300
Wardwell Purchase, Benedict & Robinson, No 2	rig bldg	
Bowers, King & Magee, No 3	rig bldg	
Cobham, W Reed	rig	
North Side, Buffalo parties	rig	
Shippen, Kuhn & Weible (old)	rig	
Pleasant Tp, Calhoun & Co,	rig bldg	
Beach, Rhodes & Co, No 2, (old)	rig	
Irvine, Brown Boys		300
Stillson, Murphy, McGhee & Co	rig	
Rankin, A McWilliams		400
Rankin, A McWilliams	rig bldg	
Uhl, Johnson & Co	topsand	
Leonhart, Beatty Bros	rig	
Beatty, D Beatty		100
Beatty, D Beatty	rig	
Roy, Jas Roy	drilling	
Scofield, A H Daniels	rig	
North Warren, Jamison & Co	rig	
New rigs		13
Old rigs		2
Drilling		10
Total		25

Clarendon.

55 Beatty, No 29	drilling
55 Beatty, No 30	rig
55 Beatty	rig bldg
78 D Beatty, (old)	rig
79 Union Oil Co	400
79 Union Oil Co	3 rigs
79 Adams & Story, No 3	400
79 R Heber, No 3	600
79 Fertig & Henne	drilling
80 Thayer & Crosby (old)	rig
105 Shugart	100
105 Shugart	rig bldg
106 Lapham & Co, No 11	rig
106 Steelsmith & Taggart	sand
106 Duor & Soult (old)	rig
464 J Smith & Son, No 6	500
464 Smith & Son, No 8	rig
465 Benedict & Co, No 10	drilling
495 Benedict & Co, No 11	rig
Emerson, No 8	400
498 Gray & Kahl (Venus Oil Co)	800
527 Tannery Oil Co, No 9	250
527 Book & Rhodes, No 4	500
550 C A & D Cornen, No 5	500
556 C A & D Cornen, No 6	drilling
557 Best & Titus, No 4	800
557 A McDonald (fishing)	sand
557 Guffey & Gaily	1400
561 Rockwell & Co, No 2	500
561 Rockwell & Co	rig
New rigs	10
Old	3
Drilling	19
Total	32

Tiona.

109 Patterson & Staley, No 3	rig
109 Patterson & Staley, No 4	rig bldg
110 Fertig & Henne, No 2	rig
157 T C Joy & Dunham	drilling
159 Clark & Foster, No 5	500
159 Clark & Foster, No 6	300
159 Clark & Foster, No 7	rig
159 Clark & Foster, No 8	rig

160 J S Patterson, No 5	1000
160 J S Patterson, No 6	500
160 J S Patterson, No 7	rig bldg
160 Hill, Pagett & Conley	rig
161 Helm & Mealey (old)	rig
166 Pagett	rig
166 Pagett	rig bldg
166 Fertig & Henne, No 14	500
166 Fertig & Henne, No 15	rig
200 W W Ballard, No 7	700
200 W W Ballard, No 8	rig
204 Dunn Bros' No 1	700
205 Hallock & Co	200
Forest County, 5214 Mallory (old)	rig
438 I L Shank	drilling
Sheffield Horton & Co	rig
369 Clapp & Lockhart	drilling
214 (Ludlow) Curtis, & Lake Bros (for gas)	drilling
398 Story, Adams & McCalmont	drilling
New rigs	12
Old rigs	2
Drilling	13
Total	27

Cooper District.

Tract.	Owner.	Depth
2735	Anchor Oil Co, No 8	1750
Cooper Tract, Lot 3	Anchor Oil Co No 21	1750
Henry Lands, Lot 1	Anchor Oil Co No 32	700
Henry Lands, Syndicate, No 11		rig
Henry Lands, Syndicate, No 12		350
Henry Lands, Syndicate, No 13		100
Henry Lands, McCalmont Oil Co, No 3		sand
Henry Lands, McCalmont Oil Co, No 6		rig bldg
Henry Lands, McCalmont Oil Co, No 13 (abd)		old rig
Henry Lands, McCalmont Oil Co, No 14		1550
Henry Lands, McCalmont Oil Co, No 15		rig
Henry Lands, McCalmont Oil Co, No 16		100
Cooper District, M W S & Co & U O Co, No 25		1360
Cooper District, M W S & Co & U O Co, No 26		500
Cooper District, M W S & Co & U O Co No 27		100
3198 Clark, Foster & Murphy, No 4		1750
Henry Lands, H B Porter & Co No 7		900
Blue Jay, Blue Jay Oil Co, No 3		1300
New rigs		3
Old rigs		1
Wells drilling		14
Total		18

Balltown.

5236 May, Kelly & Grandin, No 18 (old)	rig
5235 May, Kelly & Grandin, No 19 (old)	rig
5236 Welch & Co, No 5 (old)	rig
3133 Gaily & Murphy, No 4	1300
3133 Gartland (old)	rig
4821 Balltown Oil Co, No 8 (old)	rig
4821 Balltown Oil Co, No 15	1200
4792 Howe Oil Co, No 8	800
4792 Howe Oil Co, No 14	1400
3194 Porcupine Oil Co, No 12	700
3194 Porcupine Oil Co, No 12	1160
3194 Porcupine Oil Co, No 14	1150
3197 Porcupine Oil Co, No 25	100
3185 Gartland	rig
4283 Dutch Oil Co, No 4 (old)	rig
749 Fertig, Henne & Co (old)	rig
New rigs	1
Old rigs	7
Drilling	8
Total	16

Miscellaneous.

Tract 5229 Warren county, Lucky Oil Co	1000
Tract 5229 Munhall & Smithman	400
Tract 650 Cherry Grove, N Y parties	drilling
Tionesta, Hunter Co	890
Rigs	
Drilling	4
Total	4

Lower Country.*Venango.*

Farm.	Operator.	Depth
Fish, Warner & Co		350
McCurry, McCalmont		350
Gormley, Richardson & Co		200
Hughes, Fisher Bros, fishing		200
Gormley, Judd, Lewis & Co		rig
Gormley, Smullen & Co		rig
Echols, Richardson & Williams		600
Rhodes, Roess Bros		300
Snyder, D McElpatrick		100
Gates, George Gates		250
Glass, P Canning		600
Glass, S P McCalmont		rig
Seely, Sheasley & Co		400
Long, Mack, Long & Co		rig
Flinchbaugh, Dale Bros		rig
Flinchbaugh, Craty & Son		rig
Rembold, Woods & Graham		rig
Rembold, Dale & Smullin		rig
Kaufman, P H Judd		rig
Galy Galy & Kugler		rig
Miller, Fisher Bros, old		rig
Miller, Wolf & Kugler		rig
Cubison, Roess Bros		rig
Hughes, Hughes Bros		rig

Vicinity Emlenton.

Porterfield, R W Porterfield	100
Miller, R W Porterfield, old	rig
Crawford, E Crawford	1000
Crawford, S Crawford	rig
King, King & Co	300
Fox, Martin & Co	750
Anderson, Hamilton & Co	700
Kreis, Kreis & Co	800
Hagerty, E Goodrich	rig
McCullagh, Porterfield & Co	rig
Mackin lot, Mackin & Co	rig
Grant, Wilson Bros	900
Blymiller, S M Hale	rig
New rigs	18
Old rigs	2
Drilling	17
Total	37

Clarion.

B Meyer Smith & Turner, fishing	900
Casper, Phillip Casper	300
Fillman, J Fillman, fishing	1100
Keating, Wm Seba	rig
Baker, L E Simons & Co	200
Sweitzer, Bartlett & Co	rig
Rigs	2
Wells drilling	4
Total	6

Butler and Armstrong.

Huselson, Baldrige Oil Co	700
Reibert, Baldrige Oil Co	1300
Wallace, A Sheidemantle	600
Wallace, Phillips Bros	950
McKeever, Gage & Co	1500
Milligan, Showalter Bros & H	600
Kaltenback, Forest Oil Co	1000
Black, Aldinger & Co	500
Jameson, Jameson & Co	1100
Jackson, Jackson & Co, fishing	900
McCalmont, Phillips Bros	rig
Downey, Westerman Bros	rig
Kamerer, W T Williams	rig
Unknown, Bowers & Bethune	rig
Reep, Centennial Oil Co	rig
Byers, Zittle & Co	450
Rigs	5
Wells drilling	11
Total	16

The extensive oil well supply house of L. Emery, Jr. & Co. lately shipped to a French firm in the Russian oil field five sets of drilling tools, including a complete outfit of fishing implements, provided for any emergency. The goods were all manufactured by Bovaird & Seyfang, the well-known Bradford machinists, and are pronounced by competent judges to be the finest oil well tools ever shipped out of the oil regions.

They are of the common size used here, and will punch the Caucasian rocks under the eye of Thomas Conway, of Clarendon, who goes out as superintendent and contractor.

The shipments of the United and Tidewater lines, up to the middle of the present month have averaged 64,816 barrels, while the runs from these lines have been but 55,990 barrels per day.

FIELD OPERATIONS SUMMARIZED.

Wells Completed, With the Estimated Production on the Last Day of the Month.

ALLEGANY.

Division of Field.	SEPTEMBER.			OCTOBER.		
	Wells.	Prod'n.	Dry.	Wells.	Prod'n.	Dry.
Scio	32	335	.	28	280	.
Alma	47	403	.	35	319	3
Wirt	2	18	.	6	40	1
Bolivar	40	300	2	37	321	1
Clarksville	11	85	1	7	43	0
Genesee	29	255	1	26	241	1
Total	161	1396	4	139	1244	6

BRADFORD FIELD.

Division of Field.	SEPTEMBER.			OCTOBER.		
	Wells.	Prod'n.	Dry.	Wells.	Prod'n.	Dry.
E. & W. Branches	26	287	1	27	280	.
Kendall Creek	11	88	.	11	86	.
Foster Brook	7	87	.	8	99	.
Four Mile	8	76	.	12	110	.
Indian & Meeks Cr'k	20	185	.	24	192	.
Cole Creek	6	125	.	6	137	.
Kinzua	7	80	.	8	49	3
Total	85	928	1	96	953	3

WARREN AND FOREST.

District	SEPTEMBER.			OCTOBER.		
	Wells.	Prod'n.	Dry.	Wells.	Prod'n.	Dry.
Glade	9	80	3	10	88	5
Clarendon	13	98	.	24	160	2
Tiona	11	79	.	15	107	1
Cooper	14	919	3	7	657	.
Balltown	13	2216	2	9	845	2
Total	60	3392	8	65	1857	10

LOWER COUNTRY.

District	SEPTEMBER.			OCTOBER.		
	Wells.	Prod'n.	Dry.	Wells.	Prod'n.	Dry.
Venango	14	41	5	11	301	1
Clarion	4	9	1	2	5	1
Butler and Armstrong	10	157	2	11	52	5
Total	28	207	8	24	358	7

GRAND SUMMARY.

District.	SEPTEMBER.			OCTOBER.		
	Wells.	Prod'n.	Dry.	Wells.	Prod'n.	Dry.
Allegany	161	1396	4	139	1244	6
Bradford	85	958	1	96	953	3
Warren and Forest	60	3392	8	65	1857	10
Lower Field	28	207	8	24	358	7
Total	334	5923	21	324	4412	26
October Total	374	4412	26			
Difference	10	1511	5			

Rigs Up and Building.—Wells Drilling.

ALLEGANY FIELD.

Division of Field	OCT. 1, 1883.				NOV. 1, 1883.			
	New Rigs.	Old Rigs.	Drilling.	Total.	New Rigs.	Old Rigs.	Drilling.	Total.
Scio	7	6	26	39	15	2	19	36
Alma	22	6	37	65	33	8	42	83
Wirt	6	2	5	13	3	1	6	10
Bolivar	25	3	28	56	33	1	22	55
Clarksville	5	1	5	11	4	1	8	13
Genesee	17	4	22	43	16	10	30	56
Miscellaneous . . . . .	.	.	.	.	2	.	4	6
Total	82	22	123	227	106	22	131	259

BRADFORD FIELD.

Division of Field.	OCT. 1, 1883.				NOV. 1, 1883.			
	New Rigs.	Old Rigs.	Drilling.	Total.	New Rigs.	Old Rigs.	Drilling.	Total.
E. & W. Branches	19	9	29	57	21	8	35	64
Kendall Creek	8	1	6	15	13	1	10	24
Foster Brook	6	3	8	17	10	3	10	23
Four Mile	11	1	9	21	18	2	12	32
Indian Creek	19	1	20	40	13	2	21	36
Cole Creek	3	1	5	9	6	2	5	13
Kinzua	8	2	6	16	8	2	4	14
Miscellaneous . . . . .	.	.	.	.	.	.	.	.
Total	74	18	83	175	89	20	97	206

WARREN AND FOREST.

Division of Field.	OCT. 1, 1883.				NOV. 1, 1883.			
	New Rigs.	Old Rigs.	Drilling.	Total.	New Rigs.	Old Rigs.	Drilling.	Total.
Glade	8	.	8	16	13	2	10	25
Clarendon	5	1	24	30	10	3	19	32
Tiona	9	.	15	24	12	2	13	27
Cooper	8	5	9	22	3	1	14	18
Balltown	8	1	12	21	1	7	5	16
Miscellaneous . . . . .	.	.	.	.	.	.	4	4
Total	38	7	68	113	39	15	68	122

LOWER COUNTRY.

Division of Field.	OCT. 1, 1883.				NOV. 1, 1883.			
	New Rigs.	Old Rigs.	Drilling.	Total.	New Rigs.	Old Rigs.	Drilling.	Total.
Venango	8	1	15	24	18	2	17	37
Clarion	1	.	5	6	2	.	4	6
Butler & Armstrong	7	3	15	25	5	.	11	16
Total	16	4	35	55	25	2	32	59

GRAND SUMMARY.

Field.	OCT. 1, 1883.				NOV. 1, 1883.			
	New Rigs.	Old Rigs.	Drilling.	Total.	New Rigs.	Old Rigs.	Drilling.	Total.
Allegany	82	22	123	227	106	22	131	259
Bradford	74	18	83	175	89	20	97	206
Warren & Forest	38	7	68	113	39	15	68	122
Lower Country	16	4	35	55	25	2	32	59
Total Oct. 1	210	51	309	570	259	59	328	646
Total Nov. 1	259	59	328	646				
Increase	49	8	19	76				

THE CANADIAN FIELD.

There are 2,300 wells in the Canadian oil fields, whose average output is estimated at one barrel a day. Notwithstanding this comparatively small production, the supply has been greater than the demand, and the result is a very depressed state of affairs in the crude market. The newspapers of that region are very loud in their denunciations of the producer for his successful onslaughts into new territory and his reckless use of nitro-glycerine.

A gentleman, well informed on all matters pertaining to oil, has lately visited the Canadian field. He said that during the Cherry Grove excitement, when the price of crude and refined reached a low ebb, the Standard Oil Company shipped about 750,000 barrels of refined oil into the provinces. This oil has since come into competition with the Canadian product, and the latter has been the sufferer. Over the line they talk about the trade being glutted, when they have seven months supply above ground. In the Canadian field the pipe lines and tankage capacity are not equal to the demands of the trade. The same condition of affairs exists in Canada to-day that was found in Bradford when her hill-sides were being drenched with crude.

The maps published by McMullen & Snell of THE AGE, show all the latest developments.

OFFICIAL STATEMENT. EXPORTS OF PETROLEUM, SEPTEMBER, 1883.

BY JOSEPH NIMMO, JR., CHIEF OF BUREAU OF STATISTICS, WASHINGTON, D. C., NOV. 7, 1883.

CUSTOMS DISTRICTS.	MINERAL CRUDE.		NAPHTHAS.		ILLUMINATING.		LUBRICATING AND PARAFFINE OIL.		RESIDUUM.		TOTAL.	
	Gallons.	Dollars	Gallons.	Dollars	Gallons.	Dollars.	Gallons.	Dollars	Gallons.	Dollars	Gallons.	Dollars.
Boston & Charlestown, Mass.			2,700	595	215,153	22,904	31,647	7,587			249,500	31,086
New York, N. Y.	6,282,907	489,341	1,437,897	88,855	34,759,251	2,944,250	690,329	142,542	698,964	46,828	43,869,348	3,711,816
Philadelphia, Pa.	447,999	33,128	164,548	8,401	8,902,882	835,963	22,600	4,470	175,686	9,000	9,713,715	890,962
Baltimore, Md.					1,145,447	86,406	39,975	6,165	114,576	5,009	1,299,998	97,580
San Francisco, Cal.			6,920	1,431	37,750	7,272	100	55			44,770	8,758
All other districts.			7,706	1,188	181,112	22,681	18,881	9,419			207,699	33,288
Total for Sept. 1883	6,730,906	522,469	1,619,771	100,470	45,241,595	3,919,476	803,532	170,238	983,226	60,837	55,385,030	4,773,490
Total for Sept. 1882	5,646,094	391,360	1,369,295	91,742	34,020,423	2,729,537	794,892	190,576	124,026	7,740	41,954,730	3,410,955
Total nine months, ended Sept. 30 1883	40,571,011	3,019,604	11,539,003	817,889	335,504,657	29,843,904	7,404,460	1,626,388	5,258,106	383,337	400,277,237	35,691,122
Total nine months, ended Sept. 30 1882	31,822,793	2,337,785	11,908,263	880,906	339,098,944	29,556,782	6,261,136	1,390,662	2,962,344	191,676	392,053,480	34,357,811

THE CRUDE MARKET FOR OCTOBER, 1883.

Day of Week.	Day of Month.	Bradford.				Oil City.				New York.				Pittsburgh.			
		Opened.	Highest.	Lowest.	Closed.	Opened.	Highest.	Lowest.	Closed.	Opened.	Highest.	Lowest.	Closed.	Opened.	Highest.	Lowest.	Closed.
M	1	115 1/2	115 1/2	114 1/4	114 5/8	115 5/8	115 3/4	114 1/4	114 3/4	115 3/4	115 3/4	114 1/2	114 1/2	115 1/2	115 1/2	114 1/4	114 1/2
T	2	114 3/4	115 5/8	113 3/8	113 3/8	114 3/8	115 5/8	113 3/8	113 3/8	114 3/4	115 5/8	113 3/4	113 3/4	114 1/2	115 5/8	113 3/4	113 3/8
W	3	113 3/4	114 1/2	113 1/4	113 3/8	114	114 1/2	113 3/8	113 3/8	113 3/4	114 3/8	113 3/4	113 3/4	114	114 3/8	113 3/8	113 3/8
T	4	113 3/8	114	112 3/8	113 3/8	113 1/2	114	112 3/8	113 3/8	113 3/8	114	112 3/8	113 3/8	113 3/8	114	112 3/8	113 3/8
F	5	114	114	112 1/2	112 3/8	113 3/8	113 5/8	112 3/8	112 3/8	113 1/2	113 3/8	112 3/4	113	113 3/8	113 3/4	112 3/4	113
S	6	113 1/4	113 5/8	113	113 3/8	113	113 3/4	113	113 1/2	113	113 3/8	113	113 3/8	113 3/8	113 3/8	113	113 1/2
M	8	112 3/4	112 3/4	111 1/4	111 3/8	112 1/2	112 1/2	111 3/8	111 3/8	112 1/2	112 1/2	111 3/8	111 1/2	112 3/4	112 3/4	111 3/8	111 1/2
T	9	110 7/8	112 3/8	110 1/2	112 1/8	111	112 1/8	110 3/8	112 1/8	111	112 1/8	110 3/4	111 7/8	110 3/4	112 1/4	110 1/2	112
W	10	112 3/8	113	109	109 1/2	112 1/2	113	109 1/4	109 3/4	112 1/4	113	109 1/2	109 3/8	112 3/8	113 3/8	109 3/8	109 3/4
T	11	108 3/8	109 3/4	107 3/4	109 1/2	109 1/2	109 3/4	107 3/8	109 1/2	108 3/8	109 3/4	108	109 1/2	109 1/4	109 1/2	108	109 1/2
F	12	109 3/8	110 3/8	108 1/2	110 1/2	109 1/4	110 3/8	108 3/4	110 3/8	109 1/4	110 3/4	108 5/8	110 3/8	109 1/4	110 3/8	108 5/8	110 3/8
S	13	110 1/2	111 7/8	109 7/8	109 7/8	110 3/4	111 3/4	109 7/8	109 7/8	110 7/8	111 7/8	110	110	109 1/4	111 7/8	110	111 3/8
M	15	109 7/8	111 3/4	109 3/8	110 3/4	110 1/2	111 1/2	110 1/2	110 7/8	110 3/4	111 3/4	110 1/2	111 1/8	110 1/4	111 5/8	110 1/4	110 7/8
T	16	111 1/2	111 7/8	109 3/4	110 1/2	111 3/4	112	110	110 1/4	111 3/8	111 7/8	110	110 1/4	111 1/2	111 7/8	110 1/4	110 1/4
W	17	110 1/2	110 7/8	109 3/8	109 7/8	110 7/8	110 3/4	109 3/8	109 7/8	110 1/4	110 3/4	109 3/8	109 7/8	110 1/2	110 3/4	109 3/8	109 3/4
T	18	110	111	109 3/4	110 3/8	110	111	110	110 3/8	110	111	109 7/8	110 3/8	109 3/4	110 7/8	109 3/4	110 3/4
F	19	110 3/4	111	109 3/4	110	110 7/8	114 1/4	109 7/8	109 7/8	111	111 1/4	109 7/8	109 7/8	110 7/8	111	109 7/8	111
S	20	110	110 1/4	109 1/8	110	110 1/8	110 1/4	109 1/4	110	110	110 1/4	109 1/4	110	109 7/8	110 3/8	109 7/8	109 7/8
M	22	110 1/2	110 5/8	109 5/8	109 3/4	110 1/2	110 5/8	109 3/4	109 3/4	110 1/2	110 5/8	109 3/4	110	110 3/8	110 3/8	109 3/4	109 7/8
T	23	109 3/4	109 3/4	109	109	109 3/4	109 3/4	109 1/8	109 1/8	109 3/4	109 3/4	109 1/4	109 1/8	109 1/2	109 3/4	109 1/4	109 1/4
W	24	109	109 1/4	108 3/4	109 1/8	109 3/8	109 1/2	108 3/4	109 1/8	109 3/8	109 3/8	108 7/8	109 1/8	109	109 3/8	108 7/8	109 3/8
T	25	109 1/2	111 1/4	109 3/8	111 1/4	109 3/8	110 3/4	109 3/8	110 3/8	109 3/8	111 1/4	109 3/8	111 1/8	109 1/2	111 1/4	109 1/2	110 1/4
F	26	111 5/8	111 5/8	110 1/4	110 1/2	111 1/4	111 1/2	110 1/4	110 3/8	111 3/8	111 1/2	110 1/4	110 3/8	111 3/8	111 3/8	110 1/4	110 3/8
S	27	110 1/2	111 1/8	110 3/8	110 3/4	110 7/8	111 1/8	110 1/2	110 7/8	110 3/8	111 1/8	110 1/8	110 3/4	110 3/8	110 3/4	110 3/8	110 3/4
M	29	110 3/8	111 3/8	110 3/8	110 3/8	110 7/8	111 1/2	110	110	110 7/8	111 3/8	110 5/8	110 5/8	111	111 3/8	110 5/8	110 5/8
T	30	110 3/4	110 7/8	110	110	110 1/2	110 7/8	110	110	110 7/8	110 7/8	110	110	110 5/8	110 7/8	110	110 5/8
W	31	109 7/8	110 1/8	109 3/8	109 1/2	109 7/8	110 1/8	109 3/8	109 3/8	109 7/8	110 1/4	109 1/2	109 3/4	109 3/4	110 1/8	109 1/2	109 7/8

STOCKS ABROAD.

Reports of stocks in London, Trieste, and the seven principal continental seaports, are summarized in the following statement:

	Oct. 20, 1883	Oct. 20, 1882
Stocks Afloat and Ashore.	Barrels.	Barrels.
London	464,107	375,929
Trieste	67,952	113,528
Seven Continental Ports	2,056,806	1,862,408
Total Stocks afloat and ashore	2,588,865	2,351,865
Increase in Stocks	237,000	

A detailed statistical table giving the stocks on hand, the stocks in vessels on the ocean, and the amount unloading from the vessels at the different ports, is appended, which shows at a glance the condition of affairs abroad and the increase or decrease as compared with the corresponding period of 1882.

STOCKS IN FOREIGN PORTS OCTOBER. 20, 1883.

	Stocks Week end'g Oct. 20		Stocks Afloat Week end'g Oct. 20		Unloading Week end'g Oct. 20		Grand Total Stocks Afloat & Unloading.		Receipts. Jan. 1 to Oct. 20.		Shipments Jan. 1 to Oct. 20.	
	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.
London	303,997	407,007	25,132	21,300	46,800	35,800	375,929	464,107	578,847	568,765	361,969	410,607
Trieste	62,175	14,899	42,453	37,053	8,900	16,000	113,528	67,952	223,725	96,046	203,533	150,051
Bremen	656,232	840,041	72,373	73,903	47,000	71,500	775,605	985,444	898,416	749,379	631,942	665,479
Hamburg	237,640	214,531	86,141	69,374	30,000	59,700	353,781	804,344	737,872	619,734	722,063	722,063
Antwerp	250,830	284,007	105,622	75,775	40,000	63,500	396,452	423,282	611,480	649,885	591,110	552,730
Rotterdam	48,999	56,699	32,118	38,827	16,800	9,000	97,917	104,526	205,907	134,479	171,146	152,901
Amsterdam	35,584	39,866	36,990	14,700	16,000	20,000	88,574	74,566	126,105	165,601	131,437	175,136
Stettin	78,241	74,377	28,651	28,651	5,200		112,092	103,028	243,563	195,414	194,418	154,168
Danzig	34,283	14,631	3,704	7,724			37,987	22,355	67,202	52,169	76,408	62,186
Total	1,341,809	1,524,152	365,599	308,954	155,000	223,700	1,862,408	2,056,806	2,957,017	2,684,799	2,416,195	2,484,723

	1880.	1881.	1882.	1883.
Total stocks exclusive Danzig, London and Trieste	962,168	835,089	1,307,526	1,509,521
Total afloat, exclusive Danzig, London and Trieste	398,931	320,256	361,895	301,230
Total unloading, exclusive Danzig, London and Trieste	145,500	336,700	155,000	223,700
Grand Total exclusive Danzig, London and Trieste	1,506,599	1,498,045	1,824,421	2,034,451
Total Shipments exclusive Danzig, London and Trieste	82,078	81,637	87,416	111,147
Total Shipments since January 1, exclusive Danzig, London and Trieste	2,037,816	2,486,291	2,339,787	2,422,537

THE MACKSBURG FIELD.

Macksburg is passing out of the visual range of most operators, but a few of the ever vigilant keep a weather eye on that section of the Buckeye State. Boyle, Beaumont and Hughes, old-time scouts, and Kurtz and Brown, new recruits to the ranks, are watching the experimental work now in progress in this prospective field. The salt sand having a thickness of two hundred feet is so regular and continuous that fears were entertained that the 1,500 foot sand, which underlies it, might extend over a wide section and afford a vast amount of light territory. Knowing that the Cole Creek front, the most prolific section of the Bradford field, is bounded on the east by an ocean of salt water, the thought was suggested, at times, that oil might be found in the salt water sand of the Macksburg region. Since the issue of the October AGE there have been no important happenings, unless it shall be demonstrated beyond a doubt that the Mills & Mullin, on the Clark Farm, two miles northeast of Macksburg, is dry. As early as the 5th of the month, Mr. Boyle investigated the well and pronounced it dry. Other parties have claimed all along that the drill had not gone deep enough to determine its value as a test well. At this writing, November 15th, various reports are afloat concerning the Mills and Mullin well, and the drill continues in motion. The Mills & Mullin well being dry, the chances for a northeastern extension of the Macksburg field are very much diminished. A telegram from Macksburg states that the Bradley & Foster well shut down on account of a stranded cable on the 13th.

A gauge of the field about the 6th of the month showed that the fourteen wells which have been drilled to the 1,500 foot sand, were producing forty-eight barrels.

Our correspondent gives the following summary of operations, under date of November 5th:

Bradley & Foster's well is through the salt sand, and shut down for small tools. Decker & Son's No. 3, located 1,000 feet east of No. 1, is through the salt sand. George Rice has a well through the salt sand. It is located near the line of the Crawford farm. Keeler, Laing & Co.'s well, on the Snyder farm, southeast of Keeler's No. 1, is through the salt sand. McManus No. 2 is being drilled to the deep sand. It failed to make a staying producer from the shallow sand. His No. 1 gives indications of making an exceptionally fine well for this section. He found thirteen feet of sand, nine of which is good oil

producing sand. The well filled up three hundred feet while being drilled through the sand, and flowed natural within eighteen hours. It promises to be as large a well as Decker & Son's No. 2. D. W. Clark has a rig up on the Warren farm, southeast of the Keeler No. 1. Laing, Geider & McDonald are drilling on the coal lands. Crawford is building a rig on his farm.

W. A. Rix, of Bradford, has a rig up on the Henry Wickens farm.

The old operators, who drilled in the shallow sands about Macksburg, years ago, are not desirous of gaining a foothold in the field.

The Union Oil Company have been the most persistent in leasing lands, and have placed an embargo on a large area. So far as the future of the field is concerned, it is as much of an experiment as it was three months ago, when public attention was first directed to it.

Oil region people appear more indifferent to the territory, and are less anxious to become interested.

RUSSIAN PETROLEUM.

The production of petroleum in the Russian district of Baku, on the Caspian, for the past eight years is estimated as follows:

YEAR.	BARRELS.
1875	850,000
1876	1,400,000
1877	2,000,000
1878	2,500,000
1879 }	3,000,000 to 4,000,000
1880 }	
1881 }	
1882	5,000,000

It will be seen that the production has been steadily increasing, but that its greatest output has at no time exceeded 13,700 barrels per day.

The Nobel Bros. have supplied the interior of Russia with cheap oil for several years past. Their method of transportation is by steam vessels that sail from the harbor of Baku, across the Caspian sea, and up the Volga to Tsaritsyn, where the oil is loaded into tank cars and transported to various parts of the Empire.

Dr. Tweedle is still hard at work agitating the project of a pipe line from Baku on the Caspian, to Batoum on the Black Sea. It will have to be constructed across a very mountainous country, cut with deep gorges and ravines. It will require a line five hundred and sixty-one miles long, but it will make Russian petroleum easily accessible to all the ports of the Mediterranean. The arrival of 5,026 barrels of Russian petroleum at Stettin, the well known Baltic port, was reported

September 22. It came from St. Petersburg in American barrels, marked Nobel Bros.

Balakhani, six miles from Baku, has about 375 wells. They are all controlled by the Nobel brothers, who own sixty miles of pipe line, besides a large fleet of iron steamers and hundreds of tank cars and numerous refineries.

From the figures published elsewhere, it will be seen that Russian petroleum has, as yet, interfered very little with the exports of American petroleum.

There are numerous difficulties yet to be surmounted in the way of transportation, European jealousies, and the heavy duties and embargos placed upon Russian commerce by the smaller countries westward of Russia, before her petroleum can become a very strong competitor with our own in England and on the continent.

MAPS.

Map of Balltown Oil Field, 6x8 inches, post free, for six two-cent stamps.

Same, 14x20, on heavy blue paper, post free, for fifty cents.

Map, 22x36, showing Balltown and Cooper tracts, price \$1.00.

Map of Macksburg Oil Field, price fifty cents.

Map of the Alleghany Oil Field, with belt outlined, 20x30 inches; (shows development about 106 Alma.) Price, \$1.00.

Map of Eastern Alleghany, showing dry holes and new operations in Alma and towns east of the old field; price, \$1.00.

Map of Cooper Tract, on blue paper; price, fifty cents.

All Maps revised to date of mailing.

Address: McMULLEN & SNELL,

Box 1490, Bradford, Pa.

A new avenue of consumption for our production has been discovered. A medical man finds that a small drop injected on the point of a needle into the swelling caused by a bee sting is an infallible remedy for that common complaint. Have courage, bull.

The production of the entire Pennsylvania and New York oil regions, for October 1883, was only a few thousand barrels in excess of the amount produced by the Bradford region alone in October, 1881.

The Standard Oil Company investigation by a committee of the State Senate still drags its slow length along. A great many interesting facts have been brought to light, but the matter seems to excite little interest.

NATURAL GAS.

The rage for natural gas companies still continues in the Murrys ville region, and nearly all the available territory within one hundred miles of the gas wells has been leased to some prospective corporate body or other. Capitalists seem to be going wild on the subject, and the legal talent of several counties about Pittsburgh is kept very busy drawing up charters and securing injunctions from the different courts. Rights of way are jealously battled for among the different companies that are scrambling to gain the golden harvest that appears so abundant and certain to their eager eyes. The syndicate composed of Milton Weston, of Chicago, Archibald Blakely and a few others, have secured the lease of 3,000 acres of lands, and control forty charters, giving them exclusive right to supply the gas for heating and illuminating purposes to many towns along the Monongahela, Ohio and Allegheny rivers. Additional charters are about to be applied for covering Leet, Forward, Reserve, Lincoln and Versailles townships. The source of supply is the Murrys ville wells. An organization effected by J. K. P. Duff and others, has been squeezed out. The Penn Fuel and Fuel Gas Companies, who control the right to supply Pittsburgh with natural gas, are busily engaged laying pipes. The great natural advantage in the way of gas, timber and coal possessed by the territory in the gas field has caused some talk of building a railroad to Murrys ville. It is also understood that a company is being organized to build a railroad from Turtle creek to Murrys ville. Several well-known capitalists of Pittsburgh are said to be backing the scheme.

The continued strength of the refined market evidences the fact of a combination among refiners for a higher range of prices. In view of the reported failure of the two important tests at Macksburg, the unfavorable aspects of the country about the South Alma venture, and absence of anything of a startling nature in either of the Forest county pools, no better time could have been selected for a move of this kind. The crude market has sympathized with the improvement in the refined, and a better time and more confident feeling have already begun to manifest themselves.

The citizens of Pueblo, Colorado, are very enthusiastic over the possibilities of discovering petroleum in that vicinity. Judge Hallet donated 320 acres of land on which to make a test, and a stock company was formed for that purpose with a nominal capital of \$25,000.

STOCKS AT WELLS.

Up to the present writing, November 17th, reports have been received showing the condition of stocks at 5,642 Bradford wells November 1st. A comparison is made between the average stocks at 5,613 wells October 1st, and 5,642 November 1st. The parties who reported stocks, completed the wells during October, which make the additional number. While it would be desirable to have a much larger number of wells, the number heard from furnishes a basis upon which to draw fair conclusions on the field. The gross stocks at 5613 Bradford wells October 1st, were 352,540 barrels, an average per well of 62.80 barrels. At 5642 wells November 1st, there were 354,212 barrels, an average of 62.78 barrels. The above figures are tabulated as follows:

Time.	No. Wells.	Gross Stocks.	Average per Well.
October 1, 1883	5613	352,540	62.80
Nov'm'r 1, 1883	5642	354,212	62.78

All available figures indicate that stocks at Bradford wells were unchanged during October. At the new wells there would be an additional amount of oil which would slightly increase the working stocks in the district. Since the stocks remained unchanged, the average daily Bradford pipe line runs represent October's production. The runs by the United and Tidewater lines for October in the Bradford field were 35,654 barrels. The average daily production for September, as estimated from stocks at wells, was 34,965 barrels. Hence

Bradford's October production, est	Barrels.
Bradford's September production, est	35,654
Increase	34,965
	689

The extensive use of glycerine, the cleaning out of a large number of old wells and the completion of 93 new ones, fully sustained the Bradford production during October. The cold weather will stop the work of overhauling old wells and the story which is to be told of this field during the winter months should have a different ring from that of October. Bradford's production for October 1881, as estimated by the Producer's Committee, was 65,924 barrels.

ALLEGANY FIELD.

Operations continued active in the Allegany field throughout October, resulting in the completion of 133 wells, which will produce oil. On account of the lines being short of two inch pipe there was a slight accumulation of stocks. Reports from 517 wells October 1st, gave an average of 49.3 barrels. On the 1st of November the same wells afforded an average per well of 50.5 barrels. The parties who had 517 wells October 1st, owned 529 November 1st. The above figures are tabulated as follows:

Date.	No. Wells.	Gross Stocks.	Average per Well.
October 1, 1883	517	25,470	49.3
November 1, 1883	529	26,731	50.5
Increase		1,261	1.2

At 529 wells there was an increase of one and two-tenths barrels per well. There were about 2,978 wells in the field October 1st and 3,111 November 1st. Based on the above figures the average daily increase in stocks for the field was 332 barrels. The average daily pipe line runs by both lines for October were 12,757 barrels.

Enough reports were not secured to furnish sufficient data for absolutely accurate figures, but since the following approximations agree with the official figures, reliance can be placed on the result. The numerals are tabulated as follows:

Time.	No. Wells.	Average per Well.	Gross Stocks.
October 1	2,978	49.3	146,815
November 1	3,111	50.5	157,105
Increase	133	1.2	10,290

The average daily increase in stocks is approximated at 332 barrels. The Average daily pipe lines runs by both lines in October were 12,757. Hence

Allegany's October production is estimated at	Barrels.
Allegany's September production is estimated at	13,089
Allegany's August production is estimated at	12,335
Allegany's July production is estimated at	12,264
	12,345

The great volume of new work in the Allegany field has not changed the figures on production to any appreciable extent. The official figures make the Allegany production in October a little less than 13,000 barrels.

FOREST, WARREN, AND LOWER COUNTRY.

Reports were received from groups of wells in the different sections of Forest and Warren counties. The number of wells on the first of each month with their averages are tabulated as follows:

Field.	No. Wells. Oct. 1	No. Wells. Nov. 1	Average per Well. Oct. 1	Average per Well. Nov. 1
Cherry Grove	20	21	171	177
Cooper	49	57	268	319
Miscellaneous	81	81	45	45

The outside pipe line runs, i. e., for all sections except Allegany and Bradford were 19,238 barrels. The outside runs taken for a number of consecutive months, fairly represent the production. Assuming that the outside runs indicate the outside production, an estimate on the production of the region for October would sum up as follows:

Field.	Barrels.
Allegany	13,089
Bradford	35,654
Outside	19,238

Estimated daily average for region 67,981

Towards the close of September the production of the Balltown district reached 7,000 barrels. Since that time it has been reduced one half. This decline will have weight in the estimates of the future.

O. P. TAYLOR.

Diéd at Wellsville, N. Y., Saturday evening, November 17th, O. P. Taylor, in the 45th year of his age. He was known to every one in the oil regions as the pioneer of the Allegany field. A history of the trials and difficulties he encountered in demonstrating his belief in the presence of oil in that section, shows him to have been a man of wonderful pluck and perseverance. A Virginian by birth, he was a type of the true Southerner, warm in his attachments, and firm in his friendships. Of strong convictions, he was positive in speech, yet persuasive in manner. No kinder-hearted man lived than O. P. Taylor, and to him the needy and deserving never appealed in vain. He leaves a wife, two sons and a daughter, and as they lay him away to rest friends and neighbors will join in saying, truly, "he was without fear and without reproach."

Mr. Taylor well deserved the title of "father of the Allegany field." It was his indomitable steadfastness to a fixed idea; his patience under the most terrible disappointments and discouragements, and his sanguine faith in the existence of oil beneath the rugged hills of Allegany, that led to its discovery and development. One dry hole after another, never discouraged him. Straightened finances and diminished capital never disheartened him. The sneers of his enemies, and the smiles of indifference and disbelief on the part of his friends never deterred him from his purpose.

At last, victory crowned his efforts and success was assured him. The world knows the story of Allegany, and thousands have profited from the early labors and investigations of the man who now lies cold in death.

His life was noble and pure, his character steadfast and upright, and he leaves behind him the record and example of a sincere honest and kindly man.

The Penn Fuel Co., of Pittsburgh, in which Messrs. J. N. Pew and E. O. Emerson are so largely interested, has completed the laying of its extra high pressure pipe from Murrys ville to the heart of the Smoky City. The Seventh Avenue Hotel is one of the first public places to utilize the new gas supply for heating purposes.

The Bradley and Foster well in the Macksburg field has been drilled through the salt sand and is pronounced hopelessly dry as far as producing oil is concerned.

The original Murrys ville gasser was drilled by a Greensburg company. Finding gas instead of the oil they were seeking, they sought to utilize it in the manufacture of lamp black. But one night the factory burned down and was never rebuilt. The well continued to burn for several years. The Haymaker brothers and H. J. Brunot purchased a controlling interest and soon afterwards sold the well to Johnson & Co. This firm never got possession of it, and about this time Messrs. Robert Elliott, F. M. Magee, Ralph Richardson and others of Pittsburgh, tried to get a transfer. The title was in dispute and the sale fell through. Milton Weston, of Chicago, bought the well for \$20,000, but failed to make the payments on it, claiming the title not clear. He would not give up the well, but Brunot and Haymaker turned it over to the Penn Gas and Fuel Co. Weston's guard of five men were pitched out one fine night and the fire extinguished. The Penn Co. then proceeded to recase the well and make it useful in their project of a natural gas supply for the city of Pittsburgh.

There are 1,375 iron tanks connected with the United Pipe Lines, ranging in capacity from 1,000 to 38,000 barrels. About 1,000 of these belong wholly to the pipe company, and 86 more are owned in part by it and large oil producers. These tanks represent a total storage capacity of at least 38,000,000 barrels. Estimating the average cost per barrel at 25 cents, these vast storage reservoirs alone represent a capital of nearly ten millions of dollars.

Spartansburg, Crawford county, is yearning to be classed as an oil town. An exchange says a company has been organized with the enormous capital of \$1,000. The rig is going up and the drill will soon be going down. They will bore for heavy oil. The town is near the west line of Warren county, and lies between Corry and Titusville.

Ingall, Phillips & Co. have the largest storage capacity for petroleum of any firm in London. Their tankage space is equivalent to nearly five millions of gallons, and they are at present building storage reservoirs sufficient to contain 160,000 gallons additional.

The clearances at the Bradford Exchange for the week ending November 16th, reached the enormous aggregate of 70,576,000 barrels. The Producers' Exchange cleared 17,020,000 barrels during the same time.

THE PETROLEUM AGE.

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That can be manufactured. My motto of

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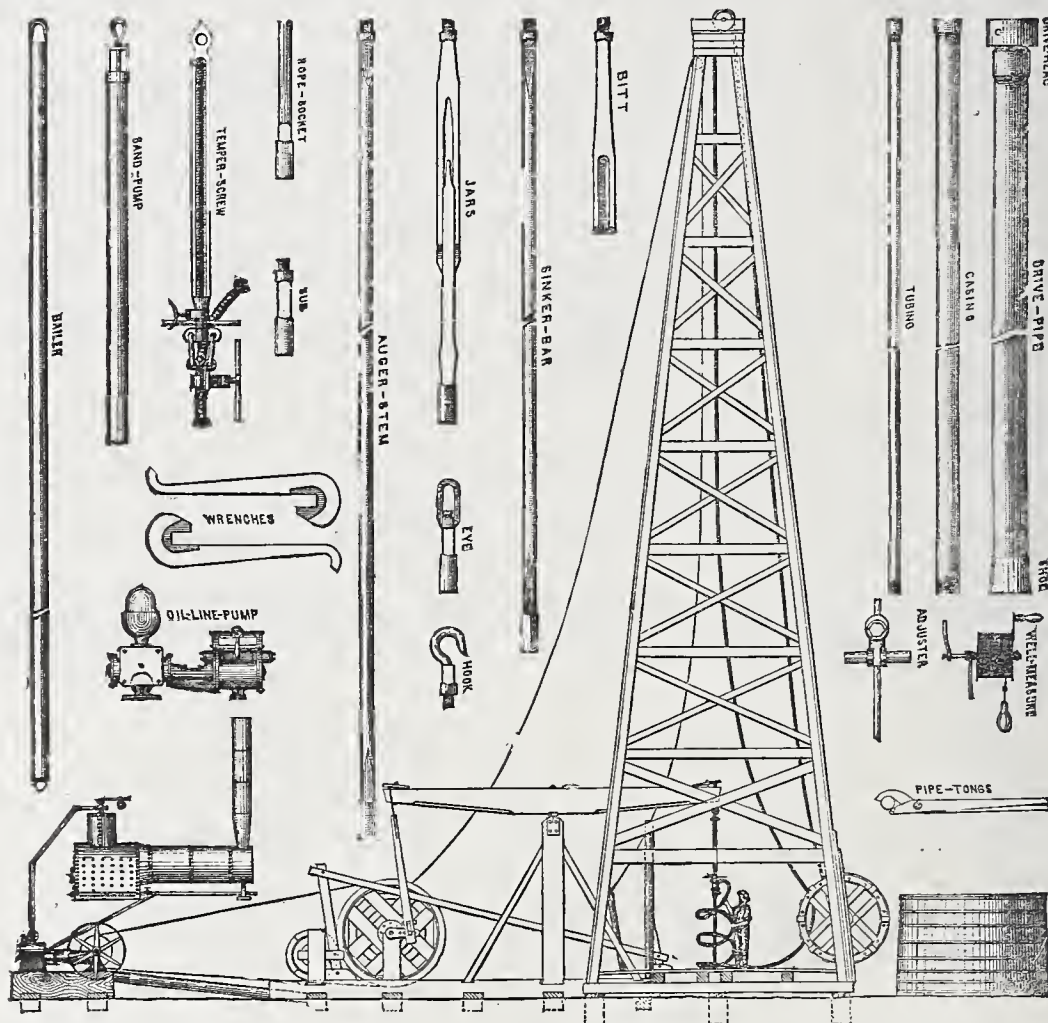
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THE PETROLEUM AGE.

VOL. II.

BRADFORD, PA., DECEMBER, 1883.

No. 11

THE OIL FIELDS OF CANADA.

C. F. ALLEN.

Beginning at Mandaumin, in the northwest part of the peninsula of Canada, embraced by the waters of the great lakes, a continuous line of developments is defined in a southeastern direction and extending through Petrolea, Oil Springs and Bothwell, and trending from Lake Huron to Lake Erie. If prolonged, the line would not fall much north of the Allegany fields in New York. The width of the belt is never greater than one mile, and with perhaps the best of judgment, to Americans unknown, the Canadian operators confine their tests to such locations as are not condemned by the theory of the belt. The experience of twenty years confirms the existence of a long narrow strip of territory as described, and at the same time has not been sufficient to prove the non-existence of other and less regularly outlined deposits.

The incentives to exertion have been few, and the obstacles serious and unceasing. There has been a lack of combination both between producers and between refiners. The result is just what we should have seen in the Pennsylvania oil fields, but for the creation of the Standard Oil Company or a similar corporation. To those familiar with the Petrolea field it would not be treasonable to say that one year of Standard rule in Canada would stimulate developments and enrich both producers and drillers. It is indisputable. With some 2,500 wells and a daily production of less than 2,500 barrels, the great territory of Canada is overhung by the cloud of *over-production*, and up against its sombre edges gleams the radiance of American refined, either smuggled or bought at a great price in comparison with the value of the home product. The reason is too plain. The refiners, in spite of the fact that any hole in the ground will afford them safe and lasting storage capacity, absolutely live from hand to mouth, and confine the pipe line operations to a small portion of the producing area. There are near Sarnia hundreds of wells up to the average as producers, whose production is hauled for miles in portable tanks at a

cost of fifteen to twenty cents per barrel. This might be remedied by the investment of a few thousand dollars, the production and consumption doubled by the increase of underground tankage, regulation of refining methods and standards, and by consistent protection in conjunction with a strict enforcement of revenue laws. The issuing of a dated license stamp to be placed upon every barrel of refined, free for domestic oil, and at an established price when used upon imported oil, would help to prevent the illegal traffic.

If President Rockefeller were interested in the Canadian trade, he would soon devise and establish a means of protection, and although he might act with sole regard to the lining of his own nest, he could not fail to make the business legitimate. It is not a cash business now, and the warehouse receipts, which are of the nature of United and Tidewater certificates, are only negotiable after the manner of ordinary securities, subject to the whims and suspicions of lenders. The holder of these receipts has no accrued rights from their possession, and unlike the owner of the United certificate, who expects the banks to make advances upon his security, whenever possible, the hardworking Canadian producer finds no part of his business facilitated by twenty years of experience.

The memorable break in petroleum during 1883 failed to warn the economists of the Dominion of the opening of the gates to American refined, and while the Canada crude, dark and ill-scented, was quoted at \$1.50, they saw no danger from the floods of amber oil that roared in the depths of Cherry Grove at fifty cents a barrel. And when American refined had fallen to a figure which, added to the excise duty of Canada, would still leave a slender margin to the importers, the gates opened, and before the Mrs. Partingtons could sweep back the flood, the Standard had placed something less than a million barrels of high-test, superior oil within their jurisdiction. Canada crude since then has slid from \$1.50 to 90 cents per barrel, in the face of the advance across the line. The presence of American oil in such quantity and at competing prices has been the cause of this, and has en-

abled the smuggler to work with little danger, the sale of imported oil being more than common.

There are many large oil companies engaged in acquiring as much of the earth as they can buy in northern Pennsylvania, who might easily, at small expense, become the owners of great areas of Canadian territory, the owners of pipe lines, freight carriers, and everything else that entitles the individual to the admiration of his fellow man, and to a seat in the U. S. Senate.

Land can be secured under bond, as it is termed, and with the option of purchase after drilling test wells. The price is generally \$100 per acre in fee, and the farms are valued at \$50 off the belt. The land is a vast plain, almost without a break and totally unlike the typical oil fields of Pennsylvania. A well costs \$500 when completed, and in many cases produces oil ten to twenty years. There are wells near Petrolea that have shed their derricks regularly since the discovery of the field, and bid fair to produce as long as they have a chance. Royalty, so common with us, is not known to these subjects of Victoria. There is a total lack of the system of collecting royalties in oil, and the wildcatter must be wealthy to obtain the land desired. A royalty lease is not known in the business.

The wells of Canada have been celebrated for the production of immense quantities of oil, and although averaging but one barrel each per day, there are records of wells that poured forth volumes of wasted crude. At Oil Springs, about 1865, wells were found that filled the streams with miles and miles of oil, and one well was estimated at 7,000 barrels daily. The King well, near Petrolea, struck soon after the Fenian raid of 1866, flowed several hundred barrels a day for months, and was followed by others of equal capacity. Some of the wells about Petrolea pumped thirty to sixty barrels a day for four years and longer.

In spite of these large figures, the average production had reached a maximum in 1871, and was only 1,500 barrels. This is explained by the fact that one large well was enough at a time, and that every barrel of excess over the meagre resources of the trade went into the soil or the creeks. There are many hidden Grasshopper pools in the vicinity of this waste.

Since 1871 the daily yield has been increased little, and the stocks have amounted to no more than the enormous total of 400,000 barrels at any time.

THE SUPPLY OF PETROLEUM.

BY PROF. S. F. PECKHAM.

All parties who have paid any attention to the subject must have become convinced early in their researches, that the origin of petroleum is involved in greater obscurity than the origin of coal; in fact, we *know* absolutely nothing concerning it. Unlike coal, it has no organic structure, hence it can only be inferred upon circumstantial evidence that it is a substance of organic origin; yet the evidence of this character is so strong that few competent judges have ventured to decide otherwise. The arguments in favor of a mineral origin have been advanced almost wholly by a school of French chemists during the last twenty years. They are based upon the results of a class of experiments first inaugurated by Berthelot, in which powerful deoxidizing agents like the alkali metals and iron at a white heat, are caused to react with steam and carbonic acid. In the reactions which follow, the hydrogen of the water and the carbon of the carbonic acid, being deprived of their oxygen, unite to form the mixture of oily fluids closely resembling crude petroleum. Of these oils a sufficient quantity have been prepared to enable the experimenters to prove their identity with each other and with the constituents of crude petroleum. Before concluding from this circumstance that petroleum is the product of similar reactions, it is necessary to assume a condition of the earth's interior concerning which we have no positive information, and while the theoretical chemistry of the earth based upon the nebular hypothesis does not forbid such possibilities, there are other considerations relating to the origin of petroleum based upon the known rather than the possible that warrant the assumption that petroleum is not of mineral origin at all. These chemical theories, however, would lead us to the belief that the fluid is a product of nature's laboratories and is still being prepared.

It is found that when coal, shale, peat, wood, or animal matter, (a lenic soap from menhaden oil) in fact any recent or fossil organic matter is subjected to destructive distillation at low temperatures, there is obtained among other products an oily fluid resembling crude petroleum, that chemistry shows to chiefly consist of the same compounds of carbon and hydrogen that are often found under conditions that make it extremely difficult to account for their origin, upon any hypothesis that does not regard them

as the product of the decomposition of animal remains. They fill the cavities of fossil corals and orthoceratites in Canada and of globe cavities in Tennessee, in all of which the oil appears to be hermetically sealed until the rock mass is penetrated, and the cavities broken. The rock masses in which these oils occur are thickly bedded Silurian limestones that were deposited in a deep sea, probably at a somewhat elevated temperature, in which vast quantities of sea animals perished and became buried. It is, therefore, most strictly in accordance with observed facts to assume that these oils, in whatever manner they may have been produced from the original animal remains, are indigenous to the rocks in which they are found.

It should be borne in mind, however, that hitherto these indigenous oils have not been discovered in any considerable quantity in the United States, but, in those localities, notably in northwestern Pennsylvania and eastern Ohio where the oils occur in large quantities, they are found saturating heavy beds of uncemented sandstone under great pressure. The oil-bearing sandstone in these regions is overlaid with an impervious shell of slate containing much silica that holds both the oil and gas within the sandstone, not locally in cavities, but over wide areas. The sandstone is also, so far as can be ascertained, underlaid with a vast expanse of shale several hundred feet in thickness containing large numbers of fossil animals and a vast quantity of fossil sea-weeds. The fossil sea-weeds are so numerous in this formation that Dr. J. S. Newbury has suggested that the primeval ocean here contained a veritable Sargossa sea. This shale so filled with the remains of sea-weeds, has been several times submitted to destructive distillation and has yielded as high as fifty gallons to the ton of distillate, that was in many respects scarcely to be distinguished from crude petroleum.

During the present century the French chemical geologists have held that all forms of bitumen have been produced by the joint action of heat, pressure and steam upon strata containing organic remains. Prominent among these gentlemen may be mentioned Daubre, who in his work entitled "Studies Upon Metamorphism," has shown the strict correspondence between his laboratory experiments and the operations of nature. No evidence appears to be lacking to show that those operations of nature in which heat, steam and pressure have joined, usually denominated by physicists metamorphism are an

entirely adequate origin for petroleum as it occurs in many localities, and particularly in the so-called "oil region of Pennsylvania." Petroleum and other forms of bitumen occur throughout the entire Appalachian system from Point Gaspic on the Gulf of St. Lawrence to northern Alabama, and it is most abundant in the neighborhood of strata in which there is the greatest accumulation of organic remains. The accumulations of sediment from which this mountain system was constructed were deposited in a current whose course was parallel with the axis of the system, and as has been so fully shown by Prof. James Hall, these sediments were deposited in great thickness and of very coarse materials in the northeast, gradually thinning and increasing in fineness as they reached the Mississippi valley in the southwest. In fact, these formations taken as a whole resemble a shingle lying with its thickest end in Canada and its thin edge in the northern Gulf States and Tennessee. From the latest conclusions of American geologists, I think it is fair to infer that originally the eastern border of these deposits laid over a region now covered by the Atlantic Ocean. When the elevation took place that brought the metamorphic rocks of New England and the Atlantic States to the surface the eastern border became submerged, or perhaps the central and western portion were thrown above a shallow sea that previously had covered the eastern portion of the continent. The facts that concern petroleum, however, are found in relation to the comparatively undisturbed and nearly level position in which the rocks holding the petroleum lie at present and the further evidence that they afford that the heat action that has altered nearly all of the rocks of New England the eastern portions of New York, Pennsylvania and Virginia became extinct along a plane that descended further and further from the surface as the western slope of the system is traversed. Such being the case, it seems reasonable to assume that along the western borders of the system, although the rocks and the coal that they enclose are unaltered at the surface, at the same time vast areas of the fucoidal shale and even limestone containing indigenous petroleum may have been invaded by the metamorphic action and thin volatile contents distilled at great depths, and having been forced upward both by heat and hydrostatic pressure may have accumulated in any overlying bed of rock sufficiently porous to receive them. This hypothesis seems to me to be in strict accordance with all known facts, to be in harmony with sci-

entific possibilities, and to be reasonable, not requiring any extraordinary assumption of either chemical or geological conditions.

It would be somewhat difficult within the limits of this article to give in detail a satisfactory explanation of the occurrence of so many different varieties of petroleum over the entire region from southern New York to northern Alabama. Yet in a general manner I think any technologist in petroleum will recognize the fact, that granting that the crude petroleum of this region is uniformly a product of destructive distillation, it is scarcely probable that a product so easily modified in some respects by a slight variation of temperature and pressure would be likely to result over very wide areas from conditions so nearly identical as to produce a uniform product. As the pressure would be greatly modified by the compactness and impenetrability as well as thickness of the overlying rocks, it is to be expected that oils found near the surface would resemble an artificial distillate produced at a low temperature and pressure, and that oils found at much greater depths and held under great pressure beneath impervious rocks, would be expected to present in a much greater degree the characteristics of an artificial distillate obtained when operating at a comparatively high temperature and pressure. It is well known that as the pressure is increased, all fluids distil at increasingly high temperatures. I think it is only necessary to observe the peculiar properties of Franklin and Bradford oils, to recognize in them representatives of the two extremes just mentioned. Many of these oils found very near the surface, appear to have been produced at a minimum temperature and pressure, as they do not contain much paraffine and remain fluid at very low temperatures. On the contrary, the deep-seated Bradford oil contains a great amount of solid paraffine and exhibits traces of the benzole series, the latter of which is especially a product of high temperatures.

If a correct interpretation of the phenomena observed in relation to petroleum leads to the hypothesis that the fluid is in most instances a distillate, and especially in those localities where the oil is abundant, then the conclusion inevitably follows that the generation of petroleum is practically completed, and that the deposits are vast natural storehouses that are being rapidly emptied with little regard to the waste of the material.

In the report that I have lately prepared for the United States Census Office, I have discussed

this question in great detail and have cited numerous authorities. While the maintenance of any particular theory concerning the origin of petroleum is primarily of very little practical importance, it is indirectly of value to the petroleum interest to conclude whether the fluid is at present being prepared in the laboratories of nature, or whether, the production of the oil having been long since completed, it is at present futile to hope for any renewal of the depleted stores that are being so rapidly exhausted by the enormous and wasteful production of recent years. I believe the indirect evidence sufficiently conclusive to practically demonstrate the fact, that an oil field once exhausted is as completely excluded from future production as a worked out bed of coal. I am further forced to conclude that those writers who endeavor to modify the inevitable conclusion that follows the admission of this fact, by citing the continued flow of the springs of Itit and Zante for twenty centuries, do not sufficiently regard the vastly different conditions under which the yield of an oil field is obtained from natural springs and artesian borings. Although the spring in the plain of Chieri was described by Herodotus and is well known to be still flowing, its yield is only a few gallons daily. Artesian borings made near this spring in 1865 never paid expenses, and after yielding a few barrels of oil daily for a short time, soon ceased to be productive. It is probable that if no artesian borings had been made on Oil Creek, the springs from which Mr. Angier gathered a few gallons daily would still produce about as much as they did in 1858. It may also fairly be supposed that if no wells had been drilled in the neighborhood of the Old American well near Burkesville, Ky., in 1860, that the American well, which, drilled in 1829, flowed for thirty years, would still flow. The Bentley well, drilled in 1819, in an inaccessible spot in Wayne county, Ky., flowed oil in 1880. This well was drilled for brine, among the mountains of southeast Kentucky, and yielded so much black petroleum that it was abandoned for that purpose. No other wells have ever been drilled near it, consequently it has yielded an insignificant supply of oil for sixty years.

I think it a misfortune to the human race that so valuable a substance as petroleum can be produced at so little cost as to be wasted with impunity. No reason can be assigned why future generations should not want the vast quantities that have been wasted in recent years through reckless lack of care and the use of torpedoes.

I am sure no one can realize more fully than myself the futility of addressing such an argument to the average oil producer, but to those who wish to look the future of the oil production fairly and intelligently in the face, I think it may not be useless to present it. If no new oil fields are discovered, the time when oil will be too valuable to waste is not far off; meantime, it is not wise to foster any delusions concerning the origin of this material. It is better that the prodigal should carefully husband the remnant of his fortune rather than continue his reckless spending under the infatuation that somewhere, it matters little where, a mint is being run for his special benefit.—*Oil, Paint and Drug Reporter*.

[Correspondence.]

A POINTER FOR PRODUCERS.

Editor AGE:

There are a great many producers, especially in the northern field, where there are so many flowing wells, who do not have any one to witness the measurements taken by the Pipe Line gaugers of tanks at the wells when the oil is run into the line. Why this matter is neglected is a mystery to every well-informed man in the business. The United Pipe Line Company requires a witness for every measurement taken by their gaugers of producers' tanks, unless the gauger has an order from the producer authorizing the gauger to act as agent in this matter for the parties who own the oil. The Pipe Line Company issue these orders and the party signing them waives all right to question the correctness of the measurements. Where the gaugers have not these peculiar orders they invariably have a very hard time of it to find the individuals whose business it is to be around to witness the measurements. Gaugers have frequently from one to three and sometimes five miles of a walk to no purpose, unless they are willing to turn on the oil without a witness. Should they do this and the company become aware of it, the gauger would be dismissed from the company's employ. The average man who attends to the producers' property thinks this witnessing of measurements a bore, and believes that it was instituted for no other purpose than to bother the life out of the men who take care of wells. The man who works on a lease will tell his employer, if he thinks the employer verdant enough, that he has no time to follow the gaugers around; that the pipe line order for witnessing gauges is nothing but red tape, and that the best thing to

do is to connect with the Tidewater. The Tidewater Pipe Line Co. do not require that measurements taken by their gaugers should be witnessed. The chances are that when the gauger comes to run the oil the fastidious lease man, spoken of above, will be at some neighboring saloon playing whisky-poker or otherwise engaged at something equally advantageous to the man by whom he is employed. We will instance one case to show that every measurement taken by the Pipe Line gaugers should be witnessed by some one who will look after the producers' interests. The Pipe Line Companies know at the end of each day's run how much oil they should receive from their gaugers. If there is an average, of course there is no use of investigating, but if there is a shortage the matter is looked up and located if possible. The gaugers are instructed to walk over and examine the lines carefully before turning on any oil. If any oil is lost by their failure to comply with these instructions their services are dispensed with. They invariably go to the wells by the most direct routes instead of walking the lines, and not unfrequently a line is broken and the oil runs on the ground. When a case of this kind occurs the gauger is not long in finding it out. He can estimate the amount of oil lost pretty closely, and knows there will be a shortage at the station he is running to if something is not done. What is to hinder him from making up such loss at the other tanks he runs during the day where there are no witnesses, or where he has an order from the producer to do as he pleases? There are still better reasons which could be given to show that there is more in this witness business than the ordinary inexperienced observer will readily discern, but we think we have said enough on the subject to give them a pointer.

AJAX.

STOCKS ABROAD.

Reports of stocks in London, Trieste, and the seven principal continental seaports, are summarized in the following statement:

Stocks Afloat and Ashore.	Nov. 17, 1883	Oct. 20, 1883
	Barrels.	Barrels.
London	451,791	464,107
Trieste	68,807	67,952
Seven Continental Ports	1,896,212	2,056,806
Total Stocks afloat and ashore	2,416,810	2,588,865
Decrease in Stocks since Oct. 20	172,055	

A detailed statistical table giving the stocks on hand, the stocks in vessels on the ocean, and the amount unloading from the vessels at the different ports, is appended, which shows at a glance the condition of affairs abroad and the increase or decrease as compared with the corresponding period of 1882. The figures from London for 1882 are lacking.

THE REFINED MARKET.

The export demand for refined continued light during November, but early in the month symptoms of a stronger feeling on the part of refiners began to be exhibited and the price steadily advanced, both here and in the foreign ports. The capacity of the refineries was pushed to the utmost to complete contracts made during the summer months, and the home demand was never more satisfactory.

Charter tonnage continued limited, nearly all vessels arriving having previous contracts to fulfill. A small business was done in cases with the Mediterranean ports and with Hong Kong, Rangoon, Java and the far eastern marts. A large order for 60,000 gallons of refined in cases, to go by steamer to Constantinople, was received. France and Spain made light purchases of crude in barrels and cases.

At the beginning of the month Standard white oils were quoted at 8¾@9c for 110° fire test; 9@9¼c for 120°; 10c for 130°, and 300° at 17@20c. Water White, 150° test, was very scarce at 12c. Toward the middle of the month the price had risen to 9@9¼c for 110° Standard White; 9¼@9½c for 120°, and 10@10½c for 130°.

The price of Naphtha remained firm at 6 cts. for the entire month. Foreign inquiries were very quiet and inactive, but the demand for domestic uses was such that a very healthy business was maintained.

Sales of refined in London for December delivery have been made at 7@7 1-16 pence. From January to March the price asked was about 7¼d; for April to June, 7½d, and it is offered for the last four months of 1884 at 8d.

		New York.	Philadelphia.	Baltimore . .	London and Liverpool . .	Bremen . . .	Antwerp . .
		Cts.	Cts.	Cts.	Pence.	Marks.	Francs.
T	1	8½	8½	8½	6¾	8 00	20
F	2	8½	8½	8½	6¾	8 00	20
S	3	8½	8½	8½	6¾	8 00	20
M	5	8½	8½	8½	6¾	8 00	20
T	6	8½	8½	8½	6¾	8 00	20
W	7	8½	8½	8½	6¾	8 00	20
T	8	8½	8½	8½	6¾	8 00	20
F	9	8½	8½	8½	6¾	8 00	20
S	10	8½	8½	8½	6¾	8 00	20¼
M	12	8¾	8½	8½	6¾	8 15	20¼
T	13	8¾	8½	8½	6¾	8 35	20¾
W	14	8¾	8½	8½	6¾	8 35	20¾
T	15	8¾	8½	8½	6¾	8 45	21½
F	16	8¾	8½	8½	7½	8 45	21½
S	17	8¾	8½	8½	7½	8 45	21½
M	19	8¾	8¾	8¾	7½	8 35	21½
T	20	8¾	8¾	8¾	7½	8 35	21½
W	21	9	8¾	8¾	7	8 35	21
T	22	9	8¾	8¾	7	8 35	21
F	23	9	8¾	8¾	7	8 35	21
S	24	9	8¾	8¾	7	8 35	21¼
M	26	9	8¾	8¾	7	8 35	21½
T	27	9	8¾	8¾	7	8 35	21½
W	28	9	8¾	8¾	7	8 30	21½
T	29	9	8¾	8¾	7	8 30	21½
F	30	9	8¾	8¾	7	8 30	21½

MACKSBURG—PAST AND PRESENT.

BY P. C. BOYLE.

MACKSBURG, Dec. 9, 1883.

So long ago as 1860, Macksburg first appeared as a claimant for oleaginous honors. Then and various times since its candidature has received flattering recognition.

The beginning was made with the modest and primitive "spring-pole" motor. The first well proved a success—oil was found at fifty-six feet. The greatest product of Ohio's first well was 118 barrels in six hours, "hand-pumped." The crude article produced was 28° specific gravity. The projector of this enterprise, Mr. James Dutton, is still sojourning on earth. He grew rich, and again poor, while now at four score years he is a helpless and hopeless invalid. His career is closing in suffering and poverty.

Following the opening of the Dutton well, spring poles rose and fell, but Dutton's well was not beaten. Duck Creek at times was the scene of great bustle and activity, presenting a picture in miniature, as it were, of the sights on Oil Creek in the early days. Several well known personages figure among the early patrons of Duck Creek stock, foremost among them being Colonel Tom Scott, Capitalist Carnegie, Bateman Goe and others.

At this late day it is not without its historic ruins. The remains (well and dump) of an oil shaft sunk by the father of the actress, Genevieve Ward, is a popular and, I might add, fantastic south side ruin. It was sunk fifty-seven feet. Further than this it is useless to relate, since its history is merely a counterpart of that of its prototype of early folly at Petroleum Centre.

To skip lightly over the pinafore period of its practical petroleum existence, little progress in the way of territorial extension was made in the ten years ensuing Dutton's strike. Operators who resisted the allurements of Cow Run were content to "rastle" with the problem as presented in the shallow sand. The early Duck Creek operator, like his Oil Creek contemporary, was a happy-go-lucky water hating individual. Contemptuous of well records and oil sands he pushed his drill till oil was found and blessed his lucky "crevice." Other "crevices" were as heartily damned because of water, which the "seed bag" failed to arrest, and in consequence of his want of science salt water is now the natural heir of the drill fifty feet below the surface anywhere in Duck Creek Valley. Mr. George

Rice, a graduate of Pithole, came here in '68, and found it necessary to ream down a well from top to bottom in order to possess himself of sand records necessary to intelligent operation. In '78 began the new life. During the above year an "Economic Geologist," whose published specialty is the "Location of Petroleum Deposits; terms, \$5 per day!" located and drilled a deep well on Buffalo Run, one mile east of Dexter. He developed a product even more gaseous than his presumptive title, yet he came as near oil as pretentious professors of geology usually arrive. He only missed it by a mile or two. The "Professor" staked his own money on the "green," and lost it like a man, which shows at least that he reposed confidence in himself and backed up his confidence with his money. His test was important, as demonstrating the existence of a porous sand rock several hundred feet below any known producing horizon in Ohio, and the presence in it of gas in prodigious quantities favored the assumption that the same rock contained oil in other parts.

One year later Mr. George Rice proceeded to investigate the deep sands from a Macksburg point of view. In finding an oil bearing rock at 1,517 feet Mr. Rice scores the first success on record. Appended is the official record of the well, which is a continuation of a shallow hole, No. 14, Rice series:

Started the drill No. 14, Depth 632.

Sand, from 710 to 808--98.
Shale, from 808 to 816--8.
Sand, from 816 to 830--14.
[Gas at 818.]
Shale, from 830 to 842--12.
Sand, from 842 to 912--70.
[Good pebble sand at 904.]
Black Smut, from 912 to 925--13.
Sand very hard from 925 to 942--17.
Black Shale from 942 to 950--8.
Sand, from 950 to 964--14.
Shale, from 964 to 968--4.
Salt Sand, from 968 to 1178--210.
Black Shale, from 1178 to 1517--339.
[Supposed to be Huron Shales.]
Good oil sand, from 1517 to 1527--10.
Blue sand, fine, from 1527 to 1576--49.
[Bottom, 1576.]
Best Sand, from 1524 to 1527.

APRIL 20, 1879.

The same veracious chronicler next proceeds to give the depth of well by rope, and afterwards by inch pipe measurement, to-wit:

Depth of well, cable measure, 1,576 8-12.

Depth of well, inch pipe measure, 1,575 9-12.

By which it will be seen that measurement by cable has here attained a remarkably high state of perfection. The variation between this method and the fixed or pole measurement, as obtained by inch pipe standing on the bottom of the well, is reduced to eleven inches. To again quote from the records: "Tubed with one-inch pipe; finished at 5 p. m. At 9 p. m. flowed head of water and gas, winding up with pure oil."

The work thus auspiciously begun August

14th, 1879, has continued with few interruptions to the present writing. Marcus Hulings soon after appeared on the scene, and went to work. Without adhering strictly to detail, suffice it to say Hulings has drilled six wells, three being to the deep sand; two in Washington county, the third being in Guernsey county, twenty-five miles due north of Macksburg. The latter is dry, but it seems a regular formation was found corresponding with Macksburg, even to the deep sand, which was full of salt water. Traces of oil were found in the upper rocks which caused Hulings to drill a second well in Guernsey county, without good results. Hulings has spent \$20,000 in this country. He still has eight barrels a day to show for it.

John H. Heiner appeared about this time, and his dry hole on the Lund farm, one hundred rods north of Rice No. 14, was the first black eye Macksburg received. This well is one mile due south of the one drilled by the "Economite Geologist." Fifteen feet of sand is claimed for Heiner's venture. It was moderately gaseous, but immoderately dry, and one hundred and fifty pounds of Hercules powder failed to change the verdict.

Royce & Brundred, impressed with the possibilities of Dexter as a probable oil producing centre, began and finished the Penn well, on the Mugrage farm, one and one-fourth miles from that drilled by the "Economic Geologist," on a line south, 29° west. Thirteen feet of sand was found at 1,414 feet. The sand was fair to look upon, but it takes more than a fascinating sand to make an oil well here. It had about the same showing of gas and oil as Heiner. This well was finished in May last, which brings us down to the present development.

About this time George Rice was finishing his second deep well, No. 7, which is about forty rods east of No. 14. The usual sand body was found as to depth, but of inferior quality. A small showing of oil was apparent while drilling through the sand, which was deemed insufficient to make a respectable grease spot on the pages of a bank book. Possessing the means and inclination, Mr. Rice decided to carry his investigation below the 1,500 foot sand as a healthful recreation. He drilled 1,000 feet, stopping at 2,500. The formation throughout the entire distance, with the exception of one or two unimportant shells, was a black carboniferous shale. The bottom of this carbon shale has never been reached in this district. It is known to be heavier here than it is in West Virginia. B. T.

Nye, a prominent Cow Run and Horse Neck (W. Va.) operator, found 400 to 600 feet of this shale at Horse Neck and this was supplemented by a dark brown sand rock at 2,200 feet, capable of storage but barren of oil at that point. According to this gentleman's theory, Mr. Rice would have another sand at 2,760 feet in his No. 7 had he continued his explorations to this depth. Satisfied with his contribution to practical geology, Rice filled his surplus capacity with fine coal and administered a Hercules powder shot where he found the 1,500 foot sand, and was both surprised and gratified with the result. Without suspecting the fact he had been harboring a ten barrel well. It registers four barrels a day now. This well exercises a depressing influence in operations to the northeast, but without cause, since it is better than the average well of this district.

While these events were taking place, Henry Keeler, a practical operator, wearying of the weird song of the hemlocks on the Tionesta, turned his footsteps south, arriving here in time to witness the completion of the Penn and Rice wells. Recognizing in these small ventures the germs of success and suspecting something better elsewhere, he became interested with Laing, Geider & Co. in territory.

It was to witness the shooting of their first well on the Smithson farm, (two-thirds of a mile southeast of Rice's No. 14), with nitro-glycerine three months later, that scouts Tennant, Beaumont, Drake and Chambers made their memorable hippodroming tour through Ohio and West Virginia in July last. Keeler No. 1, as this well is known, found from seventeen to twenty feet of sand. Tubed it made a natural showing for a three barrel well. Such was the quality and texture of the rock, twenty-five barrels a day was not considered an extravagant estimate of its probable capacity before shooting, a reputation which it was destined to sustain only for a single day, and this with the aid of sucker rods. The well was shot July 17th with 20 quarts of nitro-glycerine, under three hundred feet of oil tamping. The well being torpedoed through $4\frac{1}{4}$ inch casing, it was deemed inexpedient to shoot under more tamping, the casing resting three hundred and forty feet above the oil sand. The destructive effect of the shot in the sand was most marked, since ten days were consumed in cleaning out, the well flowing with more or less frequency every day. To sum up briefly, the well was a disappointment, for which valid reasons were numerous. The diminished diame-

ter of the hole below the salt water in all probability furnishes the major key for all the ills to which this well is heir since shooting. For a month past it has been fishing with rock exposed to salt water.

Frew, Weaver & Elliott finished a well to the deep sand, in July on the McLouth farm, one hundred rods south and west of the Keeler well, in which twelve feet of sand was found. It, too, was exploded with nitro glycerine through $4\frac{1}{4}$ inch casing. The result was unsatisfactory—it started off at ten barrels but declined at once below five. These were the first wells to be shot with nitro glycerine, and so far as results are concerned proved a poor advertisement for that process. Coming here as their owners did with a true Pennsylvania horror of salt water, nothing short of imperative necessity would have induced them to let the salt water touch the rock, much less patronize it as tamping material for torpedoes. Both parties have remained here long enough to become reconciled to salt water. The native operators hold salt water in contempt, but never fail to make use of it when occasion requires. These have scored the finest results from the use of Hercules powder under water tamping. For example: Decker & Sons No. 2, southwest of Rice No. 14 drilled wet through the sand and shot with fifty-four pounds of powder, tubed with $1\frac{1}{2}$ inch tubing; water arrested with packer on the tubing; started off July 22d last at thirty-seven barrels. In three days it filled a hundred barrel tank, a record, by the way, which is only surpassed by Rice No. 14. Decker No. 2 found less sand than either of the two shot with glycerine, but its nine feet of sand was oil sand all through. Among the native operators the Decker family are conspicuous for energy, controlling within themselves four of the sixteen deep wells and fully one-quarter of the deep sand production. Among the foreign element engaged in business here Royce & Brundred take the lead. However, Mr. Hulings has figured with considerable prominence, but he is just now holding his enterprises in judicious check. Royce & Brundred are formidable rivals to Mr. Hulings and bid fair to excel his works.

M. B. McManus is leading the proverbial goose a lively chase on the Roff farm in pursuit of the golden egg. His well is among the very few good ones here. Starting at thirty-five barrels November 17th, it is earning its money at the rate of fifteen barrels a day at this writing.

Up to the present time twenty wells have

been finished in this field; sixteen of this number are producing oil, the remainder are dry. All but one, so far as known, found a deep sand, to wit: the Bradley well, which found nothing better than shells containing gas—the oil rock was wanting. The gaseous shells were found at 1,635 feet; drilling was carried on to 1,704 feet, when the well was abandoned. The fact of gas being found and no sand may arouse suspicions of crookedness in some minds. As a matter of fact, the gas in this county is found in a rock separate and independent of the oil rock. It is a peculiarity of this “glorious climate.” The failure of the Bradley well narrows down belt areas in a cruel manner, but it shoves the southwest passage further around to the setting sun, if there is any such passage way to the Muskingum. This well wants a fraction of being five miles due south of the well located on the “Economic” geological plan. It is a complete barrier to operations in the south, as was the Hulings well. The Heiner, Penn and Geologist’s glory are to the north and west. It is safe to assume that the other wells now at the same point will be settled beyond doubt before this article sees the types.

With regard to Mullin & Mills’ well little can be said, and that little not in its favor. The well is located for a dry hole. The only thing southwest of it is the Snyder well, which is a veritable feather-weight. There is no doubt at all about oil being hauled to it in the night and scattered on the premises during the last nights of drilling and sundry nights since. The failure of this well narrows the outlet on the northeast. But in the two and one-half miles space left between this well and “Geology’s” failure there is still ample room for the passage of a rich and vigorous belt. Mullin & Co. are building a rig on the Patton farm north of their late failure, and another on the G. Stevens farm northeast of it.

W. A. Rix is building a rig on the W. Warren farm, one mile north of the Mullin fiasco, which may be prosecuted to completion. A well at that point would be an important test. The Warren farm is the key to the northeast. It is half way between the Mullin well and the gasser north of Macksburg. If there is balm in gas-sers, a compromise position such as the Warren farm ought to command it. A duster here and the failure of any one of Royce & Brundred’s recent projects would consign Macksburg to the silent tomb. The Laing & Geider well on the Ohio Coal Company’s lands is supposed to be shut

down on top of the sand; not, however, for purpose of mystification, but for the quiet and peaceable arrangement of certain affairs of interest only to themselves and perhaps more easily adjusted now than any other time. Its location with reference to a northeast belt line is better than Mullin & Mills’, yet it is possible that when they come to drill it in, it may be found on the wrong side of any belt. In jumping to a conclusion if any are deceived by these wells, they deceive themselves. The owners of neither are around spouting their wares. The Mullin party may set in motion certain simple and harmless straws, but they are not around soliciting bets on the direction of the wind.

The probable course of the oil belt has caused the enterprising scalper many sleepless, weary nights, and the problem seems no nearer solution now than when Henry Keeler fled from the rush and roar of the turbulent Tionesta. The northeast and southwest line has its adherents; the east and west line has its advocates; and the “l-e-e-tle more to the east” fellows are not without an exponent of their views. Each confident in the right, has suspended land-grabbing for the time being, and patiently bides his time till it comes his way. Judging from the eccentricities of the rocks as developed by the drill, taking into account their dips, counter-dips and slants, I doubt if Angell himself could counter the rise and call the turn.

From the McManus well on the Roff farm to the Bradley well is a dip of seventy-four feet, a distance of two and three-fourths miles. This is a south dip. From the same well to the well on the Snyder farm is a slant of twenty-seven feet; distance three-fourths of a mile southeast. From the same well to the Mullin & Mills well (salt sand measurement) is a dip of one hundred and ten feet; a distance of two and one-fourth miles, direction northeast. Here are three points of the compass, to all of which there is a pronounced dip. To the Mullin well it is so precipitous as to be almost beyond belief, but the figures are corroborated by the sand-readings (salt sand) in the Laing & Co. well on the coal lands. For those pinning their faith of larger wells on the rise of the sand rock there is sombre news in store. The only rise authenticated by the drill is north, and this goes slap-bang into the bosoms, so to speak, of all the dusters. At Dexter, the Penn well got the sand at 1,414 feet. Hulings found the deep sand at 1,300 feet in Guernsey county, twenty-five miles north of this place. The “Equinoxial Geolo-

gist" found the rock about 1,415 feet. According to the dips and slants it would seem the rock body here was in the shape of a hog back, and our wells are producing from the apex of it. The space of a mile either northeast or southwest would doubtless send the hapless driller over the rotund productive portion and down among the spare ribs, so to speak. If Macksburg can not correct its dipful record and give us a more consistent geological make-up, its popularity will suffer. Rice No. 3 (third deep well) was finished Saturday, December 8, and is showing for ten barrels a day. It is one thousand feet east of No. 14, in a southeasterly direction. Ten feet of sand was developed, about four feet being oil producing; the balance was close and fine. Being within defined territory, it is no card for the field.

At this writing there are seven wells drilling here, exclusive of Rice No. 3, and eight rigs building. Two of the wells drilling will finish this month, namely, McManus No. 2 and St. James Oil Co. No. 2. Beyond the pale of the Duck Creek dips the Rock City Mining and Manufacturing Company are drilling a test well on the Mendenhall farm, between this place and Cow Run. This firm, which is an Albany concern, have a drilling interest here.

The shipments from this place since August 1st, are, 7,176 barrels; divided as follows:

	CARS.	BARRELS.
August	16	1,800
September	20	2,390
October	14	1,562
November	11	1,424

The above represents oil from all sources. For three months there were eighteen barrels of shallow oil produced a day. At present the production from this source is less than fifteen barrels a day.

The stocks at wells were:

	BARRELS.
October 10	1,000
November 6	1,300
December 4	1,864

No shallow oil is represented in the above stocks.

PRICE LIST OF TUBING AND PIPE.

The eight firms who manufacture tubing and pipe used in the oil regions announce an alliance under the name of the Empire Iron Company. The prices adopted are as follows:

2	inch	Tubing, 15 cents per foot.
1½	do	do 12 do do
1¼	do	Pipe, long socket, 10 cents per foot.
1	do	do do 8 do do
5⁄8	do	Casing, 55 cents per foot.
		Drive Pipe, \$1.65 do
2	do	Steam Pipe, 13 cents per foot.
1½	do	do do 10½ cents do
1¼	do	do do 7-10 do do
1	do	do do 5-6-10 do do

Trade solicited by each firm as formerly, but prices to be regulated by the association based on price of raw iron.

PIPE LINE RUNS.

The difference between the Bradford and Alleghany runs and those of the entire region make up what is termed the outside runs. Taken for a number of consecutive months these show the production of all sections of the oil regions outside of Bradford and Alleghany. The following table shows the average daily runs for Alleghany, Bradford, and the outside region from the 1st of January:

1883. MONTH.	RUNS. BRADFORD.	RUNS. ALLEGANY.	RUNS. OUTSIDE	TOTAL. DAILY RUNS
January	36,847	14,106	14,172	65,125
February	38,481	13,154	13,573	65,208
March	37,754	12,619	14,031	64,404
April	38,810	13,742	16,655	69,207
May	39,039	13,793	16,613	69,445
June	38,614	13,499	18,330	70,443
July	36,489	12,381	16,758	65,628
August	37,165	12,743	18,969	68,877
September	35,894	12,358	17,958	66,210
October	35,654	12,757	19,238	67,649
November	34,516	12,332	18,433	65,281

SUMMARY of the Tidewater Pipe Line statement for November 1883.

Quantity of crude petroleum in custody at beginning of November	Barrels. 2,285,351.48
Quantity of crude petroleum in custody at close of November	2,402,871.25
Less sediment and surplus	121,800.68
Receipts during November	305,038.10
Deliveries during November	307,730.39
Outstanding certificates, accepted orders, etc	1,799,000.00
Credit Balances	482,070.57
Total liabilities Nov. 30, 1883	2,281,070.57

OCTOBER.

Quantity of crude petroleum in custody at beginning of October	2,254,470.20
Quantity of crude petroleum at close of October	2,412,682.83
Less sediment and surplus	127,331.35
Receipts During October	327,040.39
Deliveries during October	294,685.29
Outstanding certificates, accepted orders, etc	1,762,000.00
Credit balances	523,351.48
Total liabilities September 30 1883	2,285,351.48

SUMMARY of United Pipe Line statements for October and November, 1883.

	November. Barrels.	October. Barrels.
Receipts, all sources	1,635,745.42	1,750,479.04
Deliveries	1,736,517.39	1,900,918.19
Gross Stocks	35 245,242.24	35,510,912.40
Sediment and Surplus	2,104,792.81	2,257,978.17
Net Stocks	33,140,449.43	33,252,934.23
Outstanding Acceptances	28,307,351.75	27,623,847.75
Credit Balances	4,833,997.68	5,629,086.48

The Marietta Register of November 29th, in speaking of the Mills & Mullin well, says: "It is being finished under the control of John Denman, a broken-down operator from Bradford." This was likely a mis-print and intended for broker and operator, for Mr. Denman is known throughout the oil regions as a successful producer and an honorable man. His character is such that no slurs can affect it where he is known, but false statements may injure him in a business way about Macksburg, and his friends expect the Register to make the proper amends.

THE PETROLEUM MARKET.

At the beginning of November the market continued to partake of the same tone of sluggish inactivity that had characterized it all through the previous month, but about the eighth day of the month it began to assume a much stronger feeling and show unmistakable signs of an advance. This strength continued until the 22d, when the 120 point was reached both in Bradford and Oil City. After this there were several days of wild and sudden vibrations with a weaker tendency towards the close of the month. The extreme range of prices was from 108 $\frac{7}{8}$ to 120, a fluctuation of 11 $\frac{1}{8}$ cents. The month opened with certificates rather dull at 109 $\frac{5}{8}$ @109 $\frac{3}{4}$, and closed at 116 $\frac{5}{8}$ @116 $\frac{3}{4}$. October showed almost the exact reverse, opening with crude at 115 $\frac{1}{2}$ @115 $\frac{3}{4}$, and closing at 109 $\frac{1}{2}$ @109 $\frac{3}{4}$.

There was no sudden change in the situation of affairs in the regions that would warrant any such a decided advance, but it seemed rather due to a well-planned and organized movement on the part of the bulls, who took the market into their own hands and created a panic among the bears.

Wall street manifested an interest in the oil market for a time, and its capital was directed towards maintaining the position of the bulls. But the hasty attempts of large portions of the bull clique to realize profits brought about a sharp reaction, and the market dropped steadily until the close of the month.

The advance and great strength shown in the refined market had a marked effect on the price of crude, which speculators on the long side were not at all backward in urging as a legitimate cause for a November boom.

The producer has taken advantage of a peculiarly open and wet fall to thoroughly renovate his old wells, and to do his utmost towards keeping up the production. Wherever he has found a neglected spot or corner, in either Bradford or Allegany, no matter how poor the prospect or light the territory, he has drilled his well, and with a powerful discharge of nitro-glycerine has made it put forth its very best efforts at swelling the crude supply. But these incessant shootings will have their effect at last, and conspire to hasten a decay that is as certain as the rising and setting of the sun.

There are still a few prospective gushers in the petroleum horizon that will augment the production for a day or two, and may produce momentary panics and sudden set backs to the ad-

vancing tide. And so long as the visible supply shows no perceptible indications of a permanent reduction, there is always danger of sudden reverses, but the attitude of crude would seem to indicate that present prices are to be maintained and that each succeeding month must show an increased average.

The volume of business at the different exchanges, as represented by the clearing house reports, was unusually large in November and shows a decided increase over any preceding month of the year.

THE CLEARANCES.

	November. Barrels.	October. Barrels.
Bradford, Oil Exchange	198,598,000	142,034,000
Bradford, Prod. Pet.	62,446,000	58,238,000
Oil City	251,848,000	187,598,000
New York, N. Y. Pet	229,968,000	209,150,000
New York, National	166,248,000	129,768,000
Pittsburgh	151,278,000	118,742,000
Total	1,060,356,000	845,530,000

STOCKS, SHIPMENTS AND RUNS.

RUNS OR RECEIPTS.

PIPE LINE.	NOV. 1883.	OCT. 1883.
United	1,635,745.42	1,750,479.04
Tidewater	305,038.10	327,040.39
Octave Pipe Co.	3,329.69	4,871.19
Charley Run		
Shaffer Run		
Franklin (limited)	5,701.51	7,274.41
Cranberry Pipe Line	8,623.22	7,463.22
Total	1,958,437.94	2,097,128.25
Daily average	65,281.26	67,649.29

DELIVERIES OR SHIPMENTS.

PIPE LINE.	NOV. 1883.	OCT. 1883.
United	1,736,517.39	1,900,918.19
Tidewater	307,730.39	294,685.29
Octave Oil Co.	3,307.95	5,791.03
Charley Run		
Shaffer Run		
Franklin (limited)	10,428.30	13,444.00
Cranberry Pipe Line	6,908.61	5,434.23
Total	2,064,892.64	2,220,272.74
Daily average shipments	68,829.75	71,621.70
Daily excess of shipments over runs, November		3,548.49
Daily excess of shipments over runs, October		3,972.41
Daily excess of shipments over runs, September		11,372.77
Daily excess of runs over shipments Aug.		1,571.67
Daily excess of runs over shipments, July		12,905.31
Daily excess of runs over shipments, June		12,183.86

STOCKS.

PIPE.	NOV. 1883.	OCT. 1883.
United	33,140,449.43	33,252,934.23
Tidewater	2,281,070.57	2,285,351.48
Octave Oil Co.	5,689.08	7,711.62
Charley Run	3,986.81	3,986.81
Shaffer Run.	28,052.75	28,052.75
Franklin (limited)	30,766.78	35,493.57
Cranberry Pipe Line	5,221.04	3,506.43
Total	35,495,236.46	35,617,036.80
Stocks decreased November		121,800.43
Stocks decreased October		135,681.61
Stocks Decreased September		359,167.79
Stocks, Decreased, August		269,053.22
Stocks, Increased, July		386,004.51

	RUNS OR RECEIPTS.	SHIPMENTS OR DELIVERIES.
Daily Average, November	65,281	68,829
Daily Average, October	67,649	71,621
Daily Average September	66,210	77,582
Daily Average August	68,877	67,306
Daily Average July	65,628	52,722
Daily Average June	70,443	58,259
Daily Average May	69,445	61,411
Daily Average April	69,207	63,612
Daily Average March	64,404	52,737
Daily Average February	65,208	44,352
Daily Average January	65,125	43,813

Canada proposes to reduce her production of crude by an agreement among the producers to pump the wells no more than four days of twelve hours each per week, from now until May 1, 1884.

THE PETROLEUM AGE.

DEVOTED TO THE

Interests of the Petroleum Trade.

PUBLISHED MONTHLY BY

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The tragic affair at Murrysaville is a terrible warning to the men who put fire arms in the hands of their employees, with instructions to carry a point at all hazards. The oil region has witnessed many lively encounters over disputed leases, but it has remained for the country outside to set an example of lawlessness that is only paralleled by the deeds of the cow-boys and border ruffians of the remote West.

It should teach a lesson, too, to the mystery manipulators, who have been too much in the habit of placing irresponsible sentinels, heavily armed with repeating rifles and revolvers; on the simple duty of warding off trespassers from a wild-cat well. A dozen instances of this kind might be cited, but thus far no aggravated case has yet been recorded where loss of life or the infliction of severe bodily injuries has occurred, but the death of Haymaker shows what might easily have happened any time within the past two or three years.

Bowser says he "simply obeyed orders," when he fired the shot that ended the existence of a good man and a useful citizen. But the horrible reality must have already forced itself upon his mind, that he cannot thus escape the responsibility of his awful crime. The men in whose behalf he did not hesitate to stab and shoot, must also be held to strict accountability.

There is still another aspect to this lamentable occurrence at Murrysaville. A system of laws that permits and promotes useless delays, that issues injunctions first to one party and then to another, and that makes no provision for the prompt settlement of cases that involve the ownership of productive property, of such a peculiar nature as that of oil or gas territory, presents defects that certainly need be remedied. Laws must not put a premium upon the exercise of brute power. They should not be framed so loosely as to encourage riot and make physical

supremacy the test for a clear title. The oil region urgently demands special legislation that will fit cases where productive lands are in dispute, and provide for the careful management of such property until a just and equitable decision can be reached.

The Producers' Oil Exchange, of Allegheny City, has decided to apply to the courts for a dissolution of the organization. The treasurer's report showed a balance in favor of the institution of \$3,037.50. This is sufficient to pay the stockholders fifty per cent. of the capital stock for which they originally subscribed. This Exchange occupied business quarters in Excelsior Hall, and was in operation about two months.

THE PRODUCING REGION.

ALLEGANY FIELD.

A clique bent on lowering crude values has utilized a number of wells on the borders and beyond the confines of the Allegany field. The most conspicuous of these manipulated wells was the Carrol & Gregory, in the northwestern corner of Tioga county. Its geographical position failed to give it importance, and the indications of crude in the neighborhood remote from the venture were not strong enough to make the well dangerous. It was like any chance well drilled a long ways from an oil development, and merited no more attention, but by the jugglery of the field, and an agonizing delay was forced into the notice of the trade. The drill travelled to a depth of 1,980 feet and stopped Sunday evening, December 2d, without having disclosed any indications of crude. Oil may be found east and northeast of the Allegany field, but the wells drilled should not depress the value of the mobile staple until they demonstrate its existence in paying quantities.

Southeast of Whitesville, on lot 29, Alma, on the western side of Steuben county, Buffalo and Bradford parties are drilling a well.

Hydrick & Co.'s test well on the Lincoln estate, near Hinsdale, came in dry. Charles Dow drilled another northern tier well at Belvidere, which added one more to the dusty guides north of the Allegany field. The Hueston & Brecht well on lot 10, Clarksville, about one hundred and twenty rods in advance of developments, exhibited no symptoms of being better than the largest Clarksville wells. The reports which first came from the well to the speculative world traversed an avenue of intelligence along which were heard the growls of angry bears. At quite

short range from the well on lot 10, Clarksville, the territory is headed off by dry holes and gas wells. Passing from the northern limit of the district the most interest is centered in the South Alma development. At Allen & Co.'s well, on the northwestern corner of lot 85, the sand was struck November 16th at a depth of 1,226 feet, and the well was torpedoed on the 28th. It put fifteen barrels into the tank the first day and had dropped to five barrels, when Mr. Allen sold his interest to I. W. Shirley. On the 7th of December the well had ceased to flow. The gas in this section is weak and the sucker rod will be necessary in raising the light yield of crude to the surface. Shirley's well on lot 110, one half-mile northeast of 106, was drilled into the sand on the evening of Nov. 18 and during the following day. The well has since been shut down. The showing of oil was meagre and the sand rock thin. Mr. Shirley said it would be much smaller than 106. For the week ending November 19th, the 106 well averaged between six and seven barrels per day. The first fifty-one days the well made an average of nine barrels per day. Rathburne's well on 80, southwest of 106, is reported to be a failure. It could be raised to a small producer. The three wells near 106, which have been drilled since it was finished, will be rated in a much lighter order of producers. The last ruse of manipulators for depression, and the most gauzy, is the effort on the Harding well on lot 28, South Alma. At this writing, December 11th, the well is said to be a mystery. To use the vernacular of Balltown society, the reports which have been wafted from this well make one "tired." At the middle point of the north line of lot 29, due east of 28, Baker & Nobles drilled a well of such small calibre that it has never been operated. At the Baker & Nobles well the sand was struck at a depth of 784 feet. It is reported to have had a thickness of eighteen feet. There was a showing of oil, and after standing a while the oil filled up into the casing. When it is placed in producing order the owners do not expect anything better than a three to five barrel well. At the well on 29, also at the one on 28, quite a heavy gas vein was found eighty feet above the sand. One mile and a quarter west of the Harding well, on lot 25, is found the old well of the Wellsville and Alma Oil Company. Years ago it only afforded one of the stepping stones which led to the discovery of the Allegheny field. The Charles Wivel well on lot 51, northwest of 28, was pumping two barrels per day when last heard from. The well on 28 falls

into line with the light producers northeast of it on the defined streak running to 106, and its setting and surroundings indicate that it should not go beyond their producing capacity.

There is nothing evolved thus far which demonstrates that the streak extends into Potter county, and even if it should, the texture of the rock must change and the thickness increase, before it casts a dangerous shadow over the oleaginous horizon. The three miles of country which lie between the Pikeville development and 106 are likely to afford some territory which will help to hold but not increase the Allegheny production. The AGE representative who canvassed the Allegheny field found that 119 wells were completed during November, having a production on the last day of the month of 1,106 barrels. On the last day of November there were 103 new rigs up and building, 31 old rigs standing and 115 wells drilling—a decrease of ten from the count one month ago. The pipe line runs published elsewhere tell a story of the Allegheny field beyond the tampering of market manipulators. No striking changes are expected by conservative men in the condition of the Allegheny field while the drill keeps vibrating at its present speed.

THE BRADFORD FIELD.

In the broad field of Bradford there is nothing new to present for November. Over a hundred wells were completed; having on the last day of the month a production of 973 barrels, quite as large a number as was finished in October. There was a marked decrease in the rigs up and building, which is the noticeable feature of the month's business for the field. Throughout the district the torpedo men did a brisk business and in some localities old wells were sunk to the fourth sand—a layer of sand separated from the third by a bed of slate. Many large tracts are changing hands and the giant companies are buying production wherever it is offered at fair rates. The greatest activity so far as new work is concerned is found along the northern border of the field between Foster Brook and Four Mile.

WARREN AND FOREST.

The section around the town of Warren is being thoroughly canvassed since the Wardwell strike. Territory which was not considered worthy of an examination is now being hunted down by prospectors. A few derricks already loom up on the fertile flats along the Allegheny above Warren, and throughout the northern tier of townships the wild-catter is roaming. The

Wardwell development, nestling along the Allegheny between Warren and Kinzua village, placed on exhibition some interesting features during the month. The Reed No. 2 on the north side of the river and one location east of No. 1 proved the largest well struck in this section. It started at 300 barrels and when one week old was producing at the rate of 150 barrels. The sand at this well was reached at a depth of 840 feet. Reed No. 3, located about three-quarters of a mile northeast of No. 2 and nearly on a 22° line, tapped the sand November 27th. It made a light showing at first and the young men who were present report it not better than a five barrel well. The pebble sand in this well showed a small amount of crude. The oil was found in a fine white sand having a thickness of fifteen and one-half feet. There was no grit about the sand, it having more the feel when it was wet of soapstone. This well put thirty barrels into the tank the first eighteen hours after it was drilled through the sand. After being shot, packed and tubed it flowed sixty-five barrels the first twenty-six hours. It is fair to presume that the pool or belt extends from the south side of the river as far to the northeast as Reed No. 3. Time and the center-bit will disclose what lies under the hills to the eastward and westward of this well. The drill thus far has shown the rock formation to be irregular. At the large wells a good quality of pebble sand is found under the stray sand. Below the pebble sand the oil rock is similar to that found in the Clarendon or Stoneham field, where the pebble rock of good quality is not discovered. Many experienced oil men conclude that the Wardwell riverside patch will have a limited area on account of the oil coming from what they call a second sand. On the south side of the river three small wells are added to the producing list. It now looks as if the southwestern end of the field was already in sight. The oil is a light amber, colored with the same hue as that which tinges the Clarendon or Stoneham oil. Wardwell has possibilities, but its many uncertainties should remove the bearish effect until some of them become realities. The Anchor Oil Company's wells west of the Reed wells cut off the chances for a wide streak to the westward. Whatever may be its length, it is likely to assume a sucker-rod breadth. The middle ground between the Cherry Grove and Clarendon districts is being "dug" over in the hope of finding a pool west of and parallel with Cherry Grove. Clark & Foster's well on lot 563,

the last and most important, was dry in both sands. At the northeastern end of Cherry Grove, Markham is drilling on lots 589 and 591. There appears to be no ragged edges to the far-famed field whose yield to-day is as much reduced as the fortunes of many of the men who lost their wealth in easing the pressure on its porous sand rock.

A BATTLE FOR A GAS WELL.

A bloody chapter has been recorded in the history of the old Murrys ville gasser. The dispute over its possession between Pew & Emerson and the Milton Weston Company, of Chicago, has culminated in a struggle for physical mastership. Instead of waiting the slow decision of the law, brute force has been brought into requisition and a human life sacrificed to the demands of rival corporations.

As noticed in a brief review of the well, in the last issue of the AGE, Pew & Emerson, who are leading natural gas to Pittsburgh, under the name of the Penn Fuel Co., have had possession of the gasser for several months.

On the morning of the 26th of November, while Pew & Emerson's men were away from the well, a constable from Irwin Station, Albert M. Bowser, and about thirty others employed by the Weston Company, seized the well and proceeded to intrench themselves in the derrick. These men were armed with shot-guns, revolvers and Springfield rifles with bare bayonets. In the afternoon some seventy men and boys, armed with pick-handles, under the leadership of Obadiah M. Haymaker, Superintendent for Pew & Emerson, gathered about the well. Both parties were soon engaged in conflict, and during the melee Mr. Haymaker was stabbed with a bayonet and shot. Several others received more or less serious injuries. Among them were Charles Lemon, H. P. Ray and James Watt, of the Penn Fuel Co., and John McClelland and Anderson, of the Weston & Co. party.

Mr. Haymaker was carried to his house, where he almost immediately expired. A ball passed through his body below the heart and another through his arm. He had also received nine bayonet wounds, and either one of four of them would necessarily have been fatal.

Murrysville is a little village of about eighty houses, situated in Westmoreland county, six miles northeast of Stewart's Station, on the Pennsylvania Railroad. It has been noted as the locality of large natural gas deposits for the past six or seven years. The Haymaker brothers

held leases over a large number of farms in the vicinity, and had put down the well at which the affray occurred. It attracted attention more as a natural curiosity than anything else, and it was not until J. N. Pew and E. O. Emerson, in connection with the Haymakers, secured a charter for supplying Pittsburgh with the product from this well, that it began to have any commercial value. Mr. Remaley, who owns the farm on which the well is located, sold the well to Milton Weston and a party of Chicago capitalists, who called themselves the Fuel Gas Company. Col. A. Blakely, of Pittsburgh, who has been very conspicuous since the battle, was employed to look after the legal interests of the latter corporation. The Weston men claim that Remaley's lease to O. M. Haymaker is void, because of an agreement to drill 1,650 feet, which was not fulfilled; the well being only 1,350 feet deep. Furthermore that when the lease was made, oil was the product sought after, and that it contained no provisions contingent to the discovery of gas.

The Penn Fuel Company have had a large force of men employed along the line which was to lead the gas from the well, but to the credit of this company, they had made no more war-like arrangements to defend their interests than to scatter a large number of pick handles along the ditch where their men were at work. According to all accounts the man Albert M. Bowser is the one chargeable with inflicting the bayonet wounds that resulted in the death of Haymaker. Both the murderer and his victim were large, powerful men. But Haymaker was of too generous a mould to admit for an instant that any of the opposing faction were blood-thirsty enough to use the murderous weapons with which they were so liberally provided. Unhappily his estimate of the men in the Weston party was wrongly formed, for they seemed to have acted with a degree of savage ferocity, at once devilish and brutal. Numerous arrests have been made since the riot, and at the preliminary hearing before Judge Hunter, December 5, A. M. Bowser was sent back to prison, bail having been refused in his case. The other men will be admitted to bail on giving good and sufficient security in the following amounts:

Milton Weston, \$8,000; Colonel Archibald Blakely, \$8,000; Dr. J. L. Crawford, \$8,000; Henry Remaley, \$8,000; Wm. Johnston, \$8,000; Lewis Hahn, \$5,000; Moses Hahn, \$5,000; Wm. Long, \$3,000; Amos Kiehl, \$3,000; Henry Earnest, \$3,000; Cyrus McQuaide, \$3,000; Geo.

Long, \$3,000; Henry McFarlan, \$3,000; Joseph Crookston, \$3,000; Job Jones, \$3,000; King Lewis, \$3,000; Richard Carter, \$3,000; John Hirsh, \$1,000; F. L. McGar, \$1,000; James Sloan, \$1,000; W. F. Miller, \$1,000; Sherman Kelso, \$1,000.

Statistical History of Balltown and Cooper Districts.

The gauges of the Balltown and Cooper districts which are taken weekly by the scouts, are tabulated below.

BALLTOWN PRODUCTION.					
Date 1883.	No. Wells.	Barrels.	Rigs.	Drilling.	Total
April 28		983	10	10	20
May 8		970			18
May 11	11	1406		8	17
May 19	13	1146	7	8	15
May 25	14	1065	7	12	19
June 1	17	1689	7	8	15
June 9	17	1800	5	9	14
June 15	18	1851	5	10	15
June 22	20	2925	10	8	18
June 29	22	2499	11	7	18
July 6	23	2131	11	9	20
July 14	24	2063	7	13	20
July 21	25	2223	8	13	21
July 27	25	1983	9	14	23
August 4	31	3285	13	8	21
August 11	34	3586	12	7	19
August 17	35	4811	11	10	21
August 25	36	3328	11	12	23
September 1	37	3095	8	16	24
September 8	39	3287	11	15	26
September 15	41	4155	11	15	26
September 22	45	5086	8	12	20
September 29	48	4569	9	12	21
October 6	49	6458	12	10	22
October 13	51	4851	11	9	20
October 20	53	4517	5	9	15
October 27	55	3347	4	8	12
November 3	57	4111	3	7	10
November 10	59	3450	4	3	7
November 29	63	5007	6	4	10
December 14	63	3985	7	4	11
COOPER PRODUCTION.					
Date.	No. Wells.	Barrels.	Rigs.	Drilling.	Total.
February 28	16	1599			
March 10	22	3938			
March 15	25	1941			
March 21	25	1500			
March 23	26	2403			
March 27	27	2355			
March 31	32	3939			
April 11	37	4624	19	22	41
April 19	46	2234	14	28	42
April 28	47	4944	13	26	39
May 3	51	4224			
May 11	60	4326	14	18	32
May 19	63	4632	17	22	39
May 25	68	4007	14	19	33
June 1	75	5011	13	20	33
June 9	78	4881	19	17	36
June 15	82	4140	15	22	37
June 22	85	4032	13	18	31
June 28	85	3735	15	17	32
July 6	90	3994	15	11	26
July 13	93	3306	18	11	29
July 20	97	3401	21	8	29
July 27	98	3714	17	12	29
August 4	99	3129	20	15	35
August 10	101	3250	18	17	35
August 17	102	3279	16	19	35
August 24	106	3407	14	16	30
August 31	111	3811	13	12	25
September 7	111	3066	13	15	28
September 14	116	2939	13	12	25
September 21	119	3911	11	11	22
September 28	121	3832	10	13	23
October 5	123	4142	13	11	24
October 12	125	3910	11	9	20
October 19	126	3809	7	14	21
October 26	128	3526	6	13	19
November 2	131	3831	3	14	17
November 9	134	3500	3	11	14
November 29	137	3444	4	11	15
December 14	141	3182	5	9	14

Our subscribers cannot fail to notice a vast improvement in the make-up and general appearance of this month's AGE over previous issues.

NOVEMBER OPERATIONS.

THE ENTIRE REGION,—WELLS COMPLETED, WELLS DRILLING, AND RIGS UP AND BUILDING.

WELLS COMPLETED DEC. 1.

Allegany Field.

Scio.		Barrels.
Lot.	Owner.	
1,	Lee & Apple No 3	12
2,	Waco Oil Co No 3	7
2,	Straight & Hostetter No 16	12
2,	do do No 17	12
2,	Straight & Alltown	5
2,	Coast Oil Co No 9	12
2,	do do No 25	10
3,	Straight & Hostetter No 6	5
3,	J R Morse No 1	dry
11,	Mrs S M Carroll	12
12,	Allen & Morse No 2	12
50,	The Union Oil Co No 2	10
50,	do do No 3, est	8
	Wells	12
	Production	117
	Dry	1

Alma.

1,	Phillips Bros No 8	10
4,	Richardson & Co	10
4,	Matson & Thompson No 6	8
4,	Fertig Bros No 3	10
4,	Chamberlain & McConnell No 5	10
17,	Carlin, Russell & Co No 4	10
18,	Patty & Alshouse	8
18,	Manhattan Oil Co No 7	12
18,	do do No 8	12
19,	H L McMullan No 5	10
20,	Willets & Lovell No 4	10
20,	Straight & Hostetter No 5	10
20,	do do No 6	10
20,	do do No 9	10
20,	Willets & Duke No 13	12
20,	do do No 5	12
20,	do do No 6	12
21,	M Finigan & Co No 2	10
21,	do do No 6	10
21,	do do No 7	10
21,	Cochran Bros No 6	6
21,	do No 7	8
21,	do No 11	8
23,	Dow & Browniug No 4	10
24,	Vance & Horton	10
24,	Sutherland, est	10
38,	Koch Bros No 1	10
39,	Duke & Norton Oil Co No 41	10
39,	Baldwin, McCoy & Weeter	10
40,	A T Palmer No 4	10
54,	F M Leasure, est	5
85,	C F Allen & Co, est	5
100,	A A Mullin & Co	6
110,	Shirley, est	3
123,	Patty & Alshouse	3
123,	Reddy Bros, est	5
142,	L Willets, est	5
142,	Crandall & Co, est	8
142,	Nutting & Canfield, est	6
	Wells	39
	Production	349

Wirt.

1,	Lee & Apple No 1	3
34,	Wellman, Miner & Fuller No 14	15
41,	Smith & Co	10
42,	Mulkin	5
57,	A J Thompson	15
57,	do	15
	Wells	6
	Production	63

Bolivar.

6,	Bennet & Day No 2	12
6,	Summit Oil Co No 5	10
7,	J D Downing No 4	10
7,	W & J Duke No 11	10
7,	do do No 12	10
7,	Coast & Lego No 3	10
7,	A J Applebee	10
7,	do	10
7,	Montgomery & Stitts	10
14,	McCalmont Oil Co	3
15,	Wellman, Miner & Co No 2	8
15,	do do do No 6	10
15,	Fay, est	5
24,	L Emery, Jr & Davis	10
24,	Riley Allen	10
30,	Hogan & Basch, est	5
31,	Johnson & Conroy	12
31,	Empire Gas Co No 6	8
31,	Fisher Oil Co No 1 (Crandall)	15
31,	do do No 5	10
31,	J H Hydrick	10
31,	D E Fritts No 5	15
31,	do No 6	15

31,	Wellman, Miner & Smith	5
38,	Hanley & O'Shea	15
45,	Franchot Bros No 14	10
63,	H F Northrup No 9	10
63,	Columbia Oil Co No 14	8
	Wells	28
	Production	276

Clarksville.

1,	Willets	gas
9,	P T Kennedy No 7	8
9,	do No 8	8
10,	Heuston & Brecht, est	10
17,	Wm Cranston No 5	7
18,	Whipple Bros	10
26,	Sawyer & Co	dry
	Wells	7
	Production	43
	Dry	2

Genesee.

6,	Smith & Metcalf No 2, est	12
7,	S H Merriman No 8, est	8
14,	Chauncey Oil Co No 20	10
14,	do do No 31	10
14,	do do No 32	10
14,	Empire Gas Co No 4	10
15,	McCalmont Oil Co No 25	15
15,	do do No 30	15
15,	do do No 44	10
15,	do do No 45	3
15,	do do No 48	15
15,	W C McBride No 5, est	10
16,	A T Palmer No 9	15
16,	Laney & Co No 7	10
22,	I Willets No 4	6
22,	do No 5	6
23,	Dean Oil Co No 8	15
23,	do do No 18	10
23,	do do No 19	10
24,	McCleary No 6	10
24,	Armor & White	5
24,	Merritt & Childs, est	5
29,	Wellman, Miner & Dean No 2	8
30,	McCalmont Oil Co No 30	8
30,	Rosanna Wales No 4	12
31,	H L McMullan No 22	10
38,	C E Young & Co, est	10
	Wells	27
	Production	258

Bradford Field.

East and West Branches.

Farm.	Operator.	Production
Bingham, G H Van Vleck, No 25		10
do Lot 197, R J Straight No 4		10
Fox, Barnsdall & Shafner, No 3		10
do Joseph Stettlheimer No 1		5
do do No 2		10
do P W Roth, No 3		6
Dent, P C L & P Co, No 52		10
do Whitney & Wheeler No 31		15
do Goettel Bros No 21		10
Taylor, Atlas Oil Co No 5		10
do do No 6		5
Rutherford, Bradford Oil Co No 5		12
do H Jane		12
King, Hall & Co		7
Fuller, American Oil Co No 19		10
do do No 20		10
Kingsbury, Camp & Zane		8
William Beardsley, Brouson & Curtis		7
J R Clark, Clark & Hanna, est		8
Williams, Asher Brown No 6		8
B I Taylor, Herrick & Suttle No 6		10
Hawkins, P C L & P Co & P T Kennedy No 21		6
Craft, Roy & Archer No 7		8

Quintuple.

137,	Campbell & Younkings No 4, est	12
176,	H A Booth	10
188,	Jennings & Cummings	10
207,	Bradley	10
285,	Jennings & Curtis	10
	Wells	28
	Production	259

Kendall Creek.

Moore, Westmoreland Oil Co No 11	10
Buchanan, McCray Bros No 7	12
E T Co, Chapin & Co No 12	9
Bunker, H O Robbins	2
Borden, Bradley & Co	8
do Bryan & Hopkins	4
do Shear & Braunschweiger	8
Melvin, P C L & P Co No 77	7
Shedd, P O Buchanan	10
Richardson, Munhall & Smithman, est	8
Wells	10
Production	78

Foster Brook.

E T Co, H L Blackmarr & Jones No 7	10
do do do No 8	10
do do do No 9	10
do F L Blackmarr & Post No 3	10
do do do No 12	10

Willets, I Willets & Lafferty No 6	8
do Willets & Young No 13	10
Angell, Josett Bros (second sand)	10
C B & H, Watson Oil Co No 24	10
do Coldren & Wolf	12
do Chauncey Sharp	7
do Frank Smith	8
Wells	12
Production	115

Four Mile.

Van Campen, Wm M Brown	8
do do	12
do do	6
do do	10
Volkel, Franchot Bros No 5	12
R Moultrous, John Coast	8
Stevens, Stevens	5
Waters, Moore & Coast	5
do Howard & Baum	4
Widow Carrol, T Kervin	10
Jake Waters, Howard, est	8
J Moultrous, John Coast No 5, est	10
Wells	12
Production	98

Indian Creek.

Henry Loup, White & Levens	5
Pine lot, R G Bailey No 7	8
Shattuck, Emery Oil Co No 6	5
Meek's Creek, J L McKinney & Co No 3, est	10
do do do No 32	10
do Gailey Bros No 53	15
Loup, Hazelwood Oil Co No 41	8
do do No 42	10
Dodge, Shear Bros No 3	5
Barse, U O Co, Forman agent	10
Cooper, Forest Oil Co No 4	6
Keating, Forest Oil Co No 42	15
Simms, Bradford Oil Co No 38	10
Hamlin, Curtis & Davis	8
North Branch, J D Downing No 38	6
do do No 39	6
do do No 40	8
Hill, Bovee & Duck No 10	12
Hamlin, Brown, Shafer & Co	8
Keys, Windsor Bros	6
Weston lands, S S Ramsey & Co	8
Keys, Windsor Bros & Bryan	6
Wells	22
Production	185

Cole Creek.

Bingham, Johnson & Co No 119	15
do Forman & Union Oil Co No 9	30
do Lot 418, Forman No 21	10
do 494, Union Oil Co No 21	40
do 494, do do No 22	40
do 494, do do No 23	10
Brown, Miles Bros	15
Wells	7
Production	160

Kinzua.

3077, Union Oil Co No 47	20
3077, do do No 49	20
129, Bingham, P T & W C Kennedy	10
do H P Malone	5

Kinzua Village.

Campbell, Porter & Conley	5
Lot 17, J J Varney	dry
Gear, Hand, Fredericks & Co	dry
Falconer, Book & Gartlan	10
Campbell, Bradford Oil Co	8
Wells	9
Production	78
Dry	2

Warren and Forest.

Glade and other Towns.

Tract.	Owner.	Production.
Wardwell Reserve, Rhodes & Co No 3		8
do do do do No 4		30
do do do do No 2		3
Wardwell, Robinson & Benedict No 1, est		5
do do do No 2, est		5
Cobham, W Reed No 2		75
do do No 3		30
Bowers, King & Magee No 2		60
Irvine, Brown Boys		10
Rankin, McWilliams		7
Uhl, Johnson & Co, est		10
Beatty, D Beatty No 13		10
Roy, Jas Roy		10
Scofield, A H Daniels No 6		6
North Warren, Hackney & Co		4
Wells		15
Production		273

Clarendon.

Lot.	Operator.	Production.
55,	Beatty No 23	10
79,	The Union Oil Co No 5	10
79,	do do No 6	12
79,	Fertig & Co	7
106,	Lapham & Co No 11	10
106,	Steelsmith & Taggart No 2	10

106, Duor & Soult	7
464, J C Smith & Son No 6, est	8
498, E O Emerson No 8	8
498, Venus Oil Co	10
527, Tannery Oil Co No 9	10
527, Book & Rhodes No 4	10
530, Gold	10
557, Best, Titus & Co No 4	8
557, A McDonald	5
557, Guffey & Gaily	15
561, Rockwell & Co No 1	10
561, do do No 2	15
Wells	18
Production	174

Tiona.

110, Fertig & Henne No 3	3
157, T C Joy & Dunham	5
159, Fertig & Henne No 5	7
159, do do No 6	7
159, do do No 7	7
159, do do No 8	7
160, J S Patterson No 5	8
160, do No 6	8
160, Hill, Pagett & Conley No 2	8
166, Pagett	7
166, Fertig & Henne No 14	6
200, W W Ballard No 7	5
205, Hallock & Co	6
438, I L Shank	20
Sheffield, Horton & Co	dry
369, J M Clapp	12
398, Story, Adams & McCalmont	dry
Wells	17
Production	116
Dry	2

Cooper District.

2735, Anchor Oil Co No 8	50
Cooper tract, lot 3, Anchor Oil Co No 21	8
Henry lands, lot 1, do do No 32	15
do do McCalmont Oil Co No 3	15
do do do do No 14	105
do do do do No 16	dry
Cooper District, M W S & Co No 25	85
do do do do No 26	20
do do do do No 27, est	200
3108, Clark, Foster & Murphy No 4	20
Henry lands, H B Porter & Co No 7	dry
Foxburg, Blue Jay Oil Co No 3	dry
Herrick, Union Oil Co No 11	25
Henry lands, Syndicate No 13	200
Wells	14
Production	743
Dry	2

Balltown.

3133, Gaily & Murphy No 4	75
4821, Balltown Oil Co No 15	75
4792, Howe Oil Co No 8	150
3194, Porcupine Oil Co No 12, est	100
3194, do do No 13	200
3194, do do No 14	65

Miscellaneous.

5229, Warren county, Lucky Oil Co	dry
Tionesta, Hunter & Co	dry
Wells	8
Production	665
Dry	2

Lower Country.*Venango.*

Farm.	Operator.	Production.
Fish, Warner & Co		5
McCurry, S P McCalmont		5
Gormley, Richardson & Co		5
Hughes, Fisher Bros		15
Gormley, Judd, Lewis & Co		5
Rhodes, Roess Bros		5
Gates, George Gates		8
Glass, P Canning		dry
Seely, Sheasley & Co		12
Flinchbaugh, Dale Bros		5
do Craty & Son		dry
Rembold, Woods & Graham		15
do Dale & Smullin		15
Kaufman, P H Judd		6
Gaily, Gaily & Kugler		6
Miller, Fisher Bros		5
Cubison, Roess Bros		3
Unknown, Smullin & Co		dry
Allison, J J Fisher		5

Vicinity Emlenton.

Porterfield, R W Porterfield	5
Crawford, E Crawford	4
King, King & Co	6
Fox, Martin & Co	6
Anderson, Hamilton & Co	4
Kreis, Kreis & Co	5
McCullagh, Porterfield & Co	4
Grant, Wilson Bros	dry
Kepler, Griffin & Co	4
Wells	28
Production	158
Dry	4

Clarion.

B Moyer, Smith & Turner	5
Baker, L E Simons & Co	15
Wells	2
Production	20

Butler and Armstrong.

Huseltun, Baldrige Oil Co	10
Reibert, do do	8
Wallace, A Sheidemantle	25
do Phillips Bros	4
McKeever, Gage & Co	8
Milligan, Showalter Bros & H	8
Renfrew, Forest Oil Co	50
Black, Aldinger & Co	8
Weber, P Schmick	10
Campbell, Dennison & Hoyt	12
Wells	10
Production	143

DRILLING WELLS, RIGS UP AND BUILDING DEC. 1.**Allegheny Field.***Scio.*

Lot.	Owner.	Depth.
1, Manhattan Oil Co No 4		800
1, do do No 5		300
1, Lee & Apple No 4		100
1, do do No 10		100
2, Waco Oil Co No 4 (old)		rig
2, Straight & Hostetter No 18		800
2, do do No 19		800
2, Coast Oil Co No 21		600
2, do do No 28 (old)		rig
2, do do No 30		rig bldg
2, Nameless Oil Co		drilling
2, Wheeler & Snyder		1000
2, Mrs J G Williams (old)		rig
2, Farrel & Snyder		rig
2, do do		rig
3, Coyle & Co (old)		rig
4, Charles Taylor (old)		rig
4, Minnow Oil Co		700
4, do do		rig
4, O P Taylor (old)		rig
11, Greenlee & Anderson No 5		800
11, R Carrol No 3		1000
11, do No 4		rig bldg
11, Barton & Ackerly		rig bldg
11, Lowcomer		rig
12, Fenton & McConnell No 1		900
12, Allen & Morse No 1		900
12, do do No 3		100
50, The Union Oil Co No 4 (old)		rig
50, do do No 5 (old)		rig
New rigs		7
Old rigs		8
Drilling		15
Total		30

Alma.

1, Phillips Bros No 9 (old)	rig
1, do do No 10	rig
1, do do No 11	rig bldg
4, Crane & Co (old)	rig
4, McEnro Bros	sand
4, Matson & Thompson No 7	400
4, do do No 8	rig bldg
4, Fertig Bros No 4	100
4, Chamberlain & McConnell (old)	rig
4, do do No 7	rig bldg
17, Col Scott (old)	rig
17, Carlin, Russell & Co No 5	850
17, do do No 6	rig
17, New Milford Oil Co No 3	800
17, do do No 4	rig bldg
17, Manning & Co No 3	1000
18, Manhattan Oil Co No 9	500
18, do do No 10	rig
18, do do No 11	rig bldg
19, H L McMullan No 6	rig
20, Willets & Lovell No 15	500
20, do do No 16	rig
20, Straight & Hostetter No 7	600
20, do do No 8 (old)	rig
20, Willets & Duke No 7	400
21, Riter & Conley	500
21, Finigan & Co No 5	sand
21, do do No 8	800
21, do do No 9	500
21, do do No 10	400
21, do do No 11	rig
21, do do No 12	rig
21, Cochran Bros No 2	100
21, do do No 12	500
23, Dow & Browning No 5 (old)	rig
24, Vance & Horton	2dr'ling
24, do	rig
24, Sutherland	drilling
24, do	rig
24, W F Jones	500
24, Flannigan & Cheeseman No 4	200
24, do do No 5	100
24, do do No 6	rig bldg
24, do do No 7	rig bldg
28, Harding & Co	drilling
37, Crocker & Co	rig bldg

38, E T Anderson & Co No 7	800
38, do do No 8	rig
38, do do No 9	rig bldg
38, Koch Bros No 2	200
38, do do No 3	rig bldg
23, do do No 3	rig bldg
23, do do No 2	200
38, Weiser Bros & Wally No 1	100
39, do do No 3	100
38, do do No 4	rig
38, do do No 5	rig
38, do do No 6	rig
38, do do No 22	500
38, do do	3 r bldg
39, Duke & Norton Oil Co No 43	700
39, do do No 44	200
39, William Chambers	drilling
40, A T Palmer No 5	900
40, do do No 6	rig
40, do do No 7	rig bldg
66, Crawford & Co	drilling
71, Willets (shut down)	800
80, Charles Rathhurne	sand
87, Howard, O'Conner & Shanley	rig bldg
88, William Forgie (old)	rig
100, Jacob Mosher	500
100, Mulkin & Co	rig
103, Alma Oil Co (shut down)	drilling
106, Dobbins & Thorton	rig
114, Haymaker & Gaskell	rig bldg
120, Finigan & McBride	drilling
124, Manhattan Oil Co	drilling
Near saw mill, Baldwin, McCoy & Weeter	drilling
139, E Harris & Co	drilling
142, Bolivar Oil Co	drilling
142, do do	rig
142, H Stewart	rig
142, Elliott & Co	rig
New rigs	37
Old rigs	6
Wells drilling	44
Total	87

Wint.

17, Riley Allen No 1	800
17, do do No 4	rig bldg
33, Wellman, Miner & Fuller, No 14	rig
41, Gardner & Co	600
41, Wellman, Miner & Pitts	rig
41, M C Mulkin	rig bldg
50, Lester, Peters Bros & Co	600
Barton	500
Russell & Johnson No 4	rig
57, A J Thompson	400
Rigs	5
Wells drilling	5
Total	10

Bolivar.

6, Bunnell & Day No 3	rig
6, Star Oil Co No 8 (old)	rig
6, Collins No 2	1100
6, do No 3 (old)	rig
7, McDonnell & Stitt No 3	1100
7, do do No 4	rig
7, J D Downing No 5	200
7, do do No 6	200
7, do do No 7	rig
7, do do No 8	rig bldg
7, W & J Duke No 13	100
7, (Grace lot) W & J Duke No 3	100
7, Coast & Sons No 10	1000
7, do do No 11	800
7, do do No 15	700
7, do do No 16	700
7, do do No 17 (old)	rig
7, do do No 18	rig
7, do do No 19	rig
7, do do No 20	rig bldg
7, do do No 21	rig bldg
7, do do No 22	rig bldg
7, Coast & Lego No 4	rig
7, A J Applebee	rig
7, A A Hopkins No 15	200
7, do do No 16	rig
8, Crandall, Lester & Jordan No 1	sand
15, Wellman, Miner & Co No 3	600
15, do do No 4	200
15, A L Robertson & Boggs No 6	160
15, A L Robertson & Woodward No 3	rig bldg
Irvine & Morgan	rig bldg
Moran & Co	300
Hosley farm, Wellman, Miner & Co No 7	rig bldg
23, Empire Gas Co No 2	900
23, do do No 3	rig bldg
16, do do No 2	800
24, H M Ernst No 4	rig
24, C B Williams & Co	400
24, do do	rig bldg
24, Riley Allen No 2	800
24, do do No 5	rig
24, do do No 6	rig bldg
31, Johnson & Conroy No 4	900
31, do do No 5	100
31, do do No 6	rig
31, do do No 7	rig bldg
31, Empire Gas Co No 7	100

31, Fisher Oil Co (Crandall) No 2 . . .	400
31, do do do No 3 . . .	rig
31, do do (Miller) No 6 (old) . . .	rig
31, do do (Henry) No 8 . . .	rig
31, D E Fritts No 9 . . .	500
42, Parker & Co . . .	rig bldg
45, Crocker & Ryan No 5 . . .	700
63, H F Northrup No 9 . . .	rig
63, Columbia Oil Co No 15 . . .	rig
New rigs . . .	28
Old rigs . . .	4
Drilling . . .	25
Total . . .	57

Clarksville.

1, Dickinson . . .	drilling
9, Heuston & Brecht No 4 (old) . . .	rig
9, P T Kennedy No 9 . . .	200
9, do No 10 . . .	150
9, Merritt & Co . . .	rig bldg
9, Childs, Hill & Co . . .	rig bldg
17, John W Davis No 14 . . .	500
18, Whipple Bros . . .	rig bldg
18, Mahan Oil Co . . .	rig
18, McKelravy . . .	rig
20, Love & Pentzer . . .	drilling
New rigs . . .	5
Old rigs . . .	1
Wells drilling . . .	5
Total . . .	11

Genesee.

7, S H Merriman No 9 (old) . . .	rig
7, Rollin Dow (old) . . .	rig
8, I Willets No 48 . . .	600
8, do No 49 (old) . . .	rig
8, do No 50 (old) . . .	rig
8, do . . .	rig
8, do . . .	rig
41, Chauncey Oil Co No 16 (old) . . .	rig
14, Durkee & Co No 4 . . .	500
14, do No 5 . . .	rig bldg
14, Davis & Perrin No 3 . . .	1200
14, do No 4 . . .	500
14, J B Bradley No 3 . . .	rig
14, do No 6 . . .	400
14, Empire Gas Co (old) . . .	rig
15, McCalmont Oil Co No 26 (old) . . .	rig
15, do do No 28 . . .	300
15, do do No 29 . . .	rig
15, do do No 31 . . .	rig
15, do do No 32 . . .	rig
15, do do No 49 . . .	600
15, do do No 50 . . .	300
15, do do No 20 . . .	rig bldg
15, do do No 21 . . .	rig bldg
15, do do No 22 . . .	rig bldg
15, do do No 23 . . .	rig bldg
15, do do No 24 . . .	rig bldg
22, I Willets No 6 . . .	900
22, do No 7 . . .	500
22, do No 8 (old) . . .	rig
22, do No 9 (old) . . .	rig
22, do No 10 (old) . . .	rig
22, do No 11 . . .	rig
22, do No 12 . . .	rig bldg
23, Hughes & Coughlin No 8 . . .	100
23, Dean Oil Co No 6 . . .	rig
23, Coss Oil Co . . .	700
23, Emery Oil Co . . .	400
23, do . . .	200
29, William Cranston No 1 . . .	rig
29, do No 2 . . .	rig
30, McCalmont Oil Co No 24 . . .	rig
31, H L McMullan No 23 . . .	drilling
31, do (old) . . .	2 rigs
38, C E Young & Co . . .	rig bldg
New rigs . . .	18
Old rigs . . .	12
Drilling . . .	15
Total . . .	45

Miscellaneous.

Potter County (Oswayo), Vaughn & Co . . .	300
Willing (lot 155) Hatch & Co . . .	drilling
Tioga county, Carrol & Gregory . . .	1300
Hinsdale, Hydrick & Co (shut down) . . .	tp sand
Franklinville, Olean parties . . .	rig
Willing St, Johnson, Williams & Conk- lin . . .	rig bldg
Near Whitesville (Granby Oil Co) Stowe manager . . .	rig bldg
Ontario County, Gibbs & Thyng . . .	drilling
Belvidere, Charles Dow . . .	nr sand
New rigs . . .	3
Wells drilling . . .	6
Total . . .	9

Bradford Field.

East and West Branches.

Farm.	Operator.	Depth.
Bingham, G H Van Vleck, No 24 . . .		500
do lot 168, R J Straight No 7 . . .		500
do lot 186, do No 5 . . .		rig
do Forest Oil Co No 12 . . .		600

Fox, Joseph Stettheimer No 3 . . .	1000
do do No 4 . . .	rig
do P W Roth No 4 . . .	400
do Caldwell, Hamsher & Co No 2 . . .	drilling
do do do do No 3 . . .	rig
Dent, P C L & P Co No 53 . . .	1000
do do do No 54 . . .	500
do do do No 55 . . .	rig
do Whitney & Wheeler No 32 . . .	1000
do do do No 33 . . .	300
do do do No 34 . . .	rig
Taylor, Atlas Oil Co No 7 (old) . . .	rig
Kissam, Beach, Atwater & Co No 2 . . .	rig
do Asher Brown No 7 . . .	1600
King, Murphy & Co . . .	700
Mack, Fisher Bros . . .	1200
do Butts & Co . . .	drilling
Wilson, West Branch Oil Co . . .	drilling
McKellop, McClure & McKellop . . .	drilling
Renner, Harris & Co (old) . . .	rig
Hooker, Sherman . . .	900
Mullin purchase, Barnsdall . . .	sand
Willis, McCray Bros . . .	rig bldg
Ferry, P C L & P Co . . .	500
McKeown, Paul Oil Co No 1 . . .	1000
do do No 2 . . .	rig
B I Taylor, Zeigler & Rischer No 5 . . .	rig bldg
Lewis Run, Whitney & Wheeler No 6 . . .	1000
Hawkins, P C L & P Co & P T Ken- nedy No 22 . . .	300
Craft, Roy & Archer No 8 . . .	300
do do No 9 (old) . . .	rig
Nile, Bradford Oil Co . . .	sand
Reed, do do (old) . . .	2 rigs
Beardsley, Bronson & Curtis . . .	rig
State Line, Logan . . .	rig
Rutherford, H Janes No 4 . . .	300
Freeman, Scofield & Sage . . .	rig
Scott, Van Wormer & Mercer . . .	rig
Kingsbury, Wade . . .	drilling

Quintuple.

Lot.	Owner.	Depth.
25, E Strong & Co No 2 (old) . . .		rig
44, J W Humphrey (old) . . .		rig
50, B F Brinton . . .		400
110, L E Hamsher . . .		100
110, do . . .		1500
175, Atwater & Co . . .		1650
181, H A Booth (old) . . .		rig
195, Sterrett & Boggs . . .		100
207, Bradley . . .		300
211, Joseph Boggs . . .		400
New rigs . . .		13
Old rigs . . .		8
Drilling . . .		33
Total . . .		54

Kendall Creek.

Berger, P T & W C Kennedy No 5 . . .	rig bldg
Moore, Westmoreland Oil Co No 12 . . .	rig bldg
do Turner No 6 . . .	300
Sill, McCray Bros . . .	300
Duke, Suhr & Shopperlee No 1 . . .	1400
do do No 2 . . .	rig bldg
Moore, A S Palmer No 7 . . .	rig
T Straight, Walker & Co . . .	200
Duke, Charles Duke . . .	1100
Borden, Urquhart & Lavens No 7 . . .	1000
do Bradley & Co No 6 . . .	rig bldg
Thompson, Breese Bros . . .	500
Norton, Clark . . .	drilling
Melvin, P C L & P Co No 78 . . .	800
Rixford, Mullin Bros . . .	rig
Shedd, P O Buchanan . . .	100
Chamberlain, Portage Oil Co . . .	sand
do Thompson & Lane . . .	1500
New rigs . . .	6
Drilling . . .	12
Total . . .	18

Foster Brook.

E T Co, E T Co No 79 . . .	rig bldg
do Boyne, Penny & Coleman No 1 . . .	1400
do do do No 2 . . .	rig
do do do No 3 . . .	rig bldg
do H L Blackmarr No 10 . . .	500
do do No 11 . . .	rig
do do No 12 . . .	rig bldg
do F W Mitchell No 8 . . .	1700
do F L Blackmarr & Post No 11 . . .	400
do do do No 13 . . .	rig
do A E Jones . . .	rig bldg
Willets, Willets & Young No 23 . . .	800
do I Willets No 26 . . .	drilling
do do No 27 . . .	200
do O C Smith . . .	drilling
Angell Oil Co, Jas Smith (old) . . .	rig
do Josett Bros (old) . . .	rig
do Charles Wilder . . .	rig bldg
C B & H, Vandergrift & Miller No 4 . . .	400
do Watson Oil Co No 25 . . .	drilling
do Coldren & Wolf . . .	800
do Frank Smith No 2 . . .	1500
do do No 3 . . .	rig
New rigs . . .	9
Old rigs . . .	2
Drilling . . .	12
Total . . .	23

Four Mile.

Van Campen, Wm M Brown . . .	300
do do . . .	200
do do . . .	2 rigs
do do . . .	rig bldg
do Geo Van Campen & Son . . .	1500
do do do . . .	500
do Nelson & Jones . . .	sand
do Wm Doe (fishing) . . .	900
do do . . .	rig
do Perrin & Co . . .	500
Zaph, Franchot Bros . . .	800
do do . . .	500
do do . . .	rig
do do . . .	rig bldg
Waters, Moore & Coast No 5 . . .	900
do Carrol Bros No 2 (old) . . .	rig
Two Mile, Waco Oil Co . . .	1100
Widow Carrol, C J Hickey . . .	800
do do (old) . . .	rig
do T Kervin No 2 . . .	500
do do No 3 (old) . . .	rig
do do No 4 . . .	rig
do Collins (old) . . .	rig
Stewart, Johnson . . .	1200
Moultrous, John Coast No 6 . . .	rig bldg
Stevens, Wm Stevens . . .	rig
do Wm Chambers . . .	100
Sparger, Chamberlain & Co . . .	200
do do do . . .	rig
Carrol, D W Ward . . .	rig
Garr, Tuna Oil Co . . .	350
New rigs . . .	11
Old rigs . . .	4
Drilling . . .	17
Total . . .	32

Indian Creek.

Henry Loup, White & Levens . . .	rig
Pine Lot, R G Bailey No 8 . . .	500
do do . . .	rig
Shattuck, Emery Oil Co No 7 . . .	1000
do do do No 8 . . .	rig
Meek's Creek, John L McKinney & Co . . .	
do No 33 . . .	300
do John L McKinney & Co . . .	
do No 34 . . .	rig
Indian Creek, Suhr & Justus (fishing) . . .	500
Loup, Hazelwood Oil Co No 42 . . .	1000
do do do No 45 . . .	rig bldg
Dodge, Shear Bros No 4 . . .	drilling
Barse, U O Co, Forman agent . . .	300
Hamlin, Curtis & Davis (fishing) . . .	900
North Branch, J D Downing No 41 (old) . . .	rig
do do do No 42 do . . .	rig
Winchell, Morse & Allen . . .	400
Keating, Forest Oil Co No 43 . . .	rig
do do No 44 . . .	rig bldg
Williams, Langdon . . .	350
Zimmer, Keystone Gas Co . . .	rig
Elling, Forest Oil Co No 3 . . .	500
J H Campbell, A J Thompson & Forest Oil Co . . .	800
do A J Thompson & Forest Oil Co . . .	rig
Keys, D J Keys . . .	600
New rigs . . .	9
Old rigs . . .	2
Drilling . . .	13
Total . . .	24

Cole Creek.

Bingham, Forest Oil Co No 27 . . .	sand
do do No 33 . . .	rig
Rew, Capt E Frawley (old) . . .	rig
Bingham, McKean Oil Co No 44 . . .	drilling
do do do . . .	rig
do Johnson & Co No 84 . . .	drilling
do lot 494, Union Oil Co No 24 . . .	1000
do lot 572, do No 22 . . .	300
do lot 572, do No 23 . . .	rig bldg
New rigs . . .	3
Old rigs . . .	1
Drilling . . .	5
Total . . .	9

Kinzua.

3077, Union Oil Co No 48 . . .	800
3077, do No 44 . . .	800
3077, do No 50 . . .	rig
3077, do No 51 . . .	rig bldg
Sugar Run, Chapin & Co (old) . . .	rig
Lafayette, George Gillmor . . .	drilling
Butts, Mumford & Shane . . .	rig

Kinzua Village.

Campbell, Porter & Conley (old) . . .	rig
Falconer, Book & Gartlan No 2 (old) . . .	rig
Campbell, Bradford Oil Co . . .	rig
do Van Scoy & Co . . .	rig
Chappell, Frank Schoonover . . .	rig bldg
New rigs . . .	6
Old rigs . . .	3
Drilling . . .	3
Total . . .	12

Warren and Forest.*Glade and Other Towns.*

Tract.	Operator.	Depth.
Wardwell reserve, Rhodes & Co No 5.		300
Island, C W Verhack No 2 (old).		rig
Wardwell reserve, Rockland Oil Co No 3.		700
Wardwell, Benedict & Robinson No 3.		rig
do Kern & Smith.		700
Mowris, Anchor Oil Co No 1.		400
do do No 2.		200
Bowers, King & Magee No 3.		100
Cobham, Wm Reed.		rig
do do.		rig
do do.		rig
Railroad lands, Derrick Oil Co.	rig bldg	
Shippen, Kuhn & Weible (old).	rig	
Pleasant township, Chapin & Co.	drilling	
Beach, Rhodes & Co No 2 (old).	rig	
Stillson, Murphy, McGhee & Co.	rig	
Uhl, Johnson & Co.	rig	
Leonhart, Beatty Bros.	rig	100
Beatty, D Beatty.	rig	200
North Warren, Jamison & Co.	rig	
Dunbar lands, Dr Hunter.	rig	
Love, J Welles & Co.	rig	
Northwest Russellburg, Anchor O Co.	drilling	
New rigs.		10
Old rigs.		3
Drilling.		10
Total.		23

Clarendon.

Lot.	Operator.	Depth.
30, H B Porter.		100
53, Union Oil Co.		rig
55, Beatty No 29.		drilling
55, do No 30.		rig
79, Union Oil Co (old).		2 rigs
79, Adams & Story No 3.		100
79, Fertig & Henne.		rig
79, C O Duffield.		rig
80, Thayer & Crosby (old).		rig
105, Shugart No 5.		800
106, Lapham No 15.		rig
464, Smith & Son No 8.		drilling
465, Benedict No 10 (fishing).		rig
493, Benedict & Co No 11, old.		rig
497, Pratt & Co No 8.		rig bldg
498, F S Pratt.		rig
498, Mooney & Griffin.		100
Wade & Campbell.		rig
527, Tannery Oil Co.		100
527, Book & Rhodes No 5.		rig
530, J C Whitehill No 4.		300
530, S Comfort No 2.		rig
550, C A & D Cornen No 5.		900
550, do No 6.		900
555, O'Donnell & Co.		100
557, Guffey & Gailey.		rig
557, Town Bros.		rig
561, Rockwell & Co.		800
561, do.		rig
563, Clark & Foster No 1.		500
589, J Markham & Co.		rig
591, do.		500
675, Wade & Co.		rig
New rigs.		15
Old rigs.		4
Drilling.		15
Total.		34

Tiona.

102, Clark & Foster.	100
109, Staley No 3.	500

109, Short & Oyster.	rig
110, Fertig & Henne No 1.	800
110, do.	300
110, do.	4.
110, do.	5.
159, do.	9.
159, do.	10.
160, J S Patterson No 7.	300
160, do.	8.
160, do.	9.
160, do.	11.
160, Hill, Pagett & Conley No 2.	200
161, Helm & Mealey, old.	200
166, Pagett & Co.	rig
166, Fertig & Henne No 15.	800
200, W W Ballard No 8.	300
200, Wesley Chambers No 8.	200
200, do.	9.
204, Dunn Bros No 1.	200
152, G H Dimick.	rig
214, Ludlow, Curtis & Lake.	rig
407, Shank & Emery.	rig
New rigs.	10
Old rigs.	1
Drilling.	13
Total.	24

Cooper District.

Tract.	Operator.	Depth.
Henry lands, Anchor Oil Co No 33.		rig
do Syndicate No 11, old.		rig
do do 14.		100
do do 12.		sand
do McCalmont Oil Co No 6.		300
do do do 15.		1300
do do do 17.		300
do do do 18.		rig
do H B Porter No 4.		100
do do 28.		rig bldg
3198, Clark, Foster & Murphy No 5.		100
Williams, J L McKinney & Co.		100
New rigs.		3
Old rigs.		1
Drilling.		8
Total.		12

Balltown.

5236, May, Kelley & Grandin No 19.	165
5236, do do 20.	rig
3194, Porcupine Oil Co No 15.	300
3194, do do 16.	100
3194, do do 17.	rig
Funk lands, Union Oil Co.	drilling
4823, Dutch Oil Co.	100
4821, Balltown Oil Co No 16.	rig bldg
4821, do do 17.	rig bldg
3195, Gartlan, moving old rig.	rig bldg
New rigs.	4
Old rigs.	1
Drilling.	5
Total.	10

Miscellaneous.

5229, Munhall, & Smithman.	drilling
650, Cherry Grove.	1200
Drilling.	2

Lower Country.*Venango.*

Farm.	Owner.	Depth.
Miller, Wolf & Kugler.		350
Hughes, Hughes Bros.		200
Echols, Lewis & Co.		450

Redfield, Hermon district, A Johnson & Bros.	400
Snyder, D McElpatrick.	700
Fisher, Warner & Co.	650
McCalmont, S P McCalmont.	375
do do.	200
J M Long, Myers & Co.	500
Sheasley, Sheasley & Co.	400
Unknown, Beeson & Co.	150
Horse Creek, W L Lay.	rig
Hughes, Shaffer & Duffield.	rig
Gornley, Richardson & Williams.	rig
Boyle, Roess Bros.	rig
Flinchbaugh, Dale Bros.	rig
Bearey, Richardson & Williams.	rig
John McBride, Willis Hulings.	rig
Hughes, D Baum & Co.	rig
Fish, Warner & Co.	rig
Patterson, J C Sibley.	rig

Vicinity Emlenton.

Blymiller, L M Hall.	600
Weller, R W Porterfield.	200
Mitchell lot, Hamilton & Co.	100
Hagerty lot, Goodrich & Co.	100
C Middleton, Emlenton Gas Co.	150
Foster, Foster & Co.	rig
Russell, Baum & Co.	rig
S Crawford lot, S Crawford.	rig
Kreis lot, Kreis & Co.	rig
Weller, Weller & Co.	rig
Rigs.	15
Wells drilling.	16
Total.	31

Clarion.

Casper, Philip Casper.	400
Fillman, J Fillman, fishing.	1150
Sweitzer, Bartlett & Co.	150
Keating, William Seba.	350
Updegraff, Jeanneret & Co.	200
Fenton, William Fenton.	150
Graham, J C Berlin & Co.	250
Lehigh, Pye & Co.	rig
Mehrton, F H Harley.	rig
Alt, Alt Bros.	150
Rigs.	8
Wells drilling.	2
Total.	10

Butler and Armstrong.

Brady, Hunter & Cummings.	900
Seybert, Seybert Bros.	600
Downey, German Oil Co.	800
Byers, Stevens & Co.	1350
Jamison, H Jamison & Co.	1450
Jackson, Col Jackson & Co, fishing.	850
Kamerer, W S Williams & Co.	250
Thompson, Hyland & Co.	500
Unknown, Bowers & Bethune.	750
Reep, Centennial Oil Co.	500
McCalmont, Phillips Bros.	1250
Renfrew, do.	800
do do.	150
Fisher, J C Widner.	650
Huselson, Baldrige Oil Co.	rig
Wallace, A Sheidemantle.	rig
Black, Aldinger & Co.	rig
King, Westerman & Co.	rig
McKeown, Gowen & Co.	rig
Steele, Jonathan Steele.	150
Byers, O P Berry.	200
Rigs.	5
Wells drilling.	16
Total.	21

Charley S. Clark, who used to blow his fog-horn with such wonderful effect in the Exchange here, lost a well-stocked barn by fire on the 13th inst., at his farm, near New Castle, Pa. The loss is considerable and the blaze supposed to be of incendiary origin.

By the use of natural gas at the Edgar Thompson Steel Works, at Braddock, forty-eight boilers are heated. The change dispenses with the daily consumption of 300 tons of coal and the labor of 125 men. A single gas well of Doubleday & Boulton's produced this revolution and has gas to spare.

Bradford will now have glass works. Nine car loads of material arrived on Tuesday, December 11 inst., and work on buildings will be prosecuted as rapidly as the weather will permit.

The Petrolia Exchange is still flourishing, with a membership of fifty. R. Jennings is President; S. Harley, Vice-President; F. S. Masson, Secretary and Treasurer.

For Book, Commercial and Fancy Job Printing and Book-Binding, go to Lerch, printer of Petroleum AGE, rear of 61 Main street, Bradford, Pa.

FIELD OPERATIONS SUMMARIZED.

Wells Completed, With the Estimated Production on the Last Day of the Month.

ALLEGANY.

Division of Field.	OCTOBER, 1883.			NOVEMBER, 1883.		
	Wells.	Prod'n.	Dry.	Wells.	Prod'n.	Dry.
Scio	28	280	.	12	117	1
Alma	35	319	3	39	349	.
Wirt	6	40	1	6	63	.
Bolivar	37	321	1	28	276	.
Clarksville	7	43	.	7	43	2
Genesee	26	241	1	27	258	.
Total	139	1244	6	119	1106	3

BRADFORD FIELD.

Division of Field.	OCTOBER.			NOVEMBER.		
	Wells.	Prod'n.	Dry.	Wells.	Prod'n.	Dry.
E. & W. Branches	27	280	.	28	259	.
Kendall Creek	11	86	.	10	78	.
Foster Brook	8	99	.	12	115	.
Four Mile	12	110	.	12	98	.
Indian & Meeks Cr'ks	24	192	.	22	185	.
Cole Creek	6	137	.	7	160	.
Kinzua	8	49	3	9	78	2
Total	96	953	3	100	973	2

WARREN AND FOREST.

District	OCTOBER.			NOVEMBER.		
	Wells.	Prod'n.	Dry.	Wells.	Prod'n.	Dry.
Glade	10	88	5	15	273	.
Clarendon	24	160	2	18	174	.
Tiona	15	107	1	17	116	2
Cooper	7	657	.	14	743	2
Balltown	9	845	2	8	665	2
Total	65	1857	10	72	1971	6

LOWER COUNTRY.

District	OCTOBER.			NOVEMBER.		
	Wells.	Prod'n.	Dry.	Wells.	Prod'n.	Dry.
Venango	11	301	1	28	158	4
Clarion	2	5	1	2	20	.
Butler and Armstrong	11	52	5	10	143	.
Total	24	358	7	40	321	4

GRAND SUMMARY.

District.	OCTOBER.			NOVEMBER.		
	Wells.	Prod'n.	Dry.	Wells.	Prod'n.	Dry.
Allegany	139	1244	6	119	1106	3
Bradford	96	953	3	100	973	2
Warren and Forest	65	1857	10	72	1971	6
Lower Field	24	358	7	40	321	4
Total	324	4412	26	331	4371	15
October Total	331	4371	15			
Difference	7	41	11			

Rigs Up and Building.—Wells Drilling.

ALLEGANY FIELD.

Division of Field	NOV. 1, 1883.			DEC. 1, 1883.		
	New Rigs.	Old Rigs.	Drilling.	New Rigs.	Old Rigs.	Drilling.
Scio	15	2	19	7	8	15
Alma	33	8	42	37	6	44
Wirt	3	1	6	5	.	5
Bolivar	33	.	22	28	4	25
Clarksville	4	1	8	5	1	5
Genesee	16	10	30	18	12	15
Miscellaneous	2	.	4	3	.	6
Total	106	22	131	103	31	115

BRADFORD FIELD.

Division of Field.	NOV. 1, 1883.			DEC. 1, 1883.		
	New Rigs.	Old Rigs.	Drilling.	New Rigs.	Old Rigs.	Drilling.
E. & W. Branches	21	8	35	13	8	33
Kendall Creek	13	1	10	9	.	12
Foster Brook	10	3	10	9	2	12
Four Mile	18	2	12	11	4	17
Indian Creek	13	2	21	9	2	13
Cole Creek	6	2	5	3	1	5
Kinzua	8	2	4	3	3	3
Miscellaneous . . . . .	.	.	.	.	.	.
Total	89	20	97	57	20	95

WARREN AND FOREST.

Division of Field.	NOV. 1, 1883.			DEC. 1, 1883.		
	New Rigs.	Old Rigs.	Drilling.	New Rigs.	Old Rigs.	Drilling.
Glade	13	2	10	10	3	10
Clarendon	10	3	19	15	4	15
Tiona	12	2	13	10	1	13
Cooper	3	1	14	3	1	8
Balltown	1	7	8	4	1	5
Miscellaneous . . . . .	.	.	4	.	.	2
Total	39	15	68	42	10	53

LOWER COUNTRY.

Division of Field.	NOV. 1, 1883.			DEC. 1, 1883.		
	New Rigs.	Old Rigs.	Drilling.	New Rigs.	Old Rigs.	Drilling.
Venango	18	2	17	15	.	16
Clarion	2	.	4	8	.	2
Butler & Armstrong	5	.	11	5	.	16
Total	25	2	32	28	.	34

GRAND SUMMARY.

Field.	NOV. 1, 1883.			DEC. 1, 1883.		
	New Rigs.	Old Rigs.	Drilling.	New Rigs.	Old Rigs.	Drilling.
Allegany	106	22	131	103	31	115
Bradford	89	20	97	57	20	95
Warren & Forest	39	15	68	42	10	53
Lower Country	25	2	32	28	.	34
Total Nov. 1	259	59	328	230	61	297
Total Dec. 1	230	61	297	588		
Decrease	29	2	31	58		

EXPORTS OF PETROLEUM,

Including all the Products of Refined, Lubricating, Naphtha and Residuum, from the United States, and its Value from 1864 to 1883.

NOTE.—This statement is compiled from the official reports of the Chief of the Bureau of Statistics to the Secretary of the Treasury. The fiscal or treasury year begins July 1st and ends June 30th.

Year.	No. of Gallons.	Value in Dollars.
1864	23,210,369	\$10,782,689
1865	25,496,849	16,563,413
1866	50,987,341	24,830,887
1867	70,255,481	24,407,642
1868	79,456,888	21,810,676
1869	100,636,684	31,127,433
1870	113,735,294	32,668,960
1871	149,892,691	36,894,810
1872	145,171,583	34,058,390
1873	187,815,187	42,050,756
1874	247,806,483	41,245,815
1875	221,955,308	30,078,568
1876	243,660,152	32,915,786
1877	309,198,914	61,789,438
1878	338,841,303	46,574,974
1879	378,310,010	40,305,249
1880	423,964,699	36,218,625
1881	397,660,262	40,315,609
1882	559,934,590	51,232,706
1883	505,931,622	44,913,079

The Rochester Tumbler Works, at Rochester, Pa., with but comparatively a meagre supply of natural gas from two wells, make such fine goods and so cheaply, as to be able to supply large orders to the English trade. With vast and unfailing stores of gas at command, the United Glass Works of Bradford should ere long take a prominent place in the markets of the world.

OFFICIAL STATEMENT, EXPORTS OF PETROLEUM, OCTOBER, 1883.

BY JOSEPH NIMMO, JR., CHIEF OF BUREAU OF STATISTICS, WASHINGTON, D. C., DEC. 10, 1883.

CUSTOMS DISTRICTS.	MINERAL CRUDE.		NAPHTHAS		ILLUMINATING.		LUBRICATING AND PARAFFINE OIL.		RESIDUUM.		TOTAL.	
	Gallons.	Dollars	Gallons.	Dollars	Gallons.	Dollars	Gallons.	Dollars	Gallons.	Dollars	Gallons.	Dollars
Boston & Charlestown, Mass.			1,000	385	197,233	23,269	25,373	6,727	1,092	195	224,698	30,576
New York, N. Y.	6,912,129	517,315	2,476,476	162,205	29,045,150	2,573,880	779,199	172,580	336,000	15,120	39,548,954	3,441,100
Philadelphia, Pa.	277,131	20,635	84,366	5,650	5,824,899	523,204	9,500	1,900			6,195,896	553,395
Baltimore, Md.					1,988,862	162,220	10,297	1,600			1,999,159	163,820
San Francisco, Cal.			13,810	3,013	37,770	7,773	1,126	669			52,706	11,455
All other districts.	4,984	652	4,901	600	293,795	31,054	1,247	558			304,837	32,864
Total for Oct. 1883	7,194,244	538,602	2,580,553	171,859	37,387,619	3,323,400	826,742	184,034	337,092	15,315	48,326,250	4,233,210
Total for Oct. 1882	5,635,323	416,519	2,173,638	179,305	36,002,684	3,175,298	817,469	184,513	756,210	48,594	45,386,324	4,004,229
Total for ten months, ended Oct. 31, 1883	47,765,255	3,558,206	14,119,556	989,748	372,892,276	33,167,304	8,231,202	1,810,422	5,595,198	398,652	448,603,487	39,924,332
Total for ten months, ended Oct. 31, 1882	37,459,116	2,754,304	14,081,901	1,060,211	375,101,628	32,732,080	7,078,605	1,575,175	3,718,554	240,270	437,439,804	38,362,040

THE CRUDE MARKET FOR NOVEMBER, 1883.

Day of Week.	Day of Month.	Bradford.				Oil City.				New York.				Pittsburgh.			
		Opened.	Highest.	Lowest.	Closed.	Opened.	Highest.	Lowest.	Closed.	Opened.	Highest.	Lowest.	Closed.	Opened.	Highest.	Lowest.	Closed.
T	1	109 $\frac{3}{8}$	109 $\frac{3}{8}$	109	109 $\frac{1}{8}$	109 $\frac{3}{8}$	109 $\frac{3}{8}$	109 $\frac{1}{8}$	109 $\frac{1}{8}$	109 $\frac{3}{8}$	109 $\frac{3}{8}$	109 $\frac{1}{8}$	109 $\frac{1}{8}$	109 $\frac{3}{8}$	109 $\frac{3}{8}$	109	109
F	2	109 $\frac{1}{8}$	109 $\frac{1}{8}$	108 $\frac{3}{8}$	109	109 $\frac{3}{8}$	109 $\frac{3}{8}$	108 $\frac{3}{8}$	108 $\frac{3}{8}$	109 $\frac{1}{8}$	109 $\frac{1}{8}$	108 $\frac{3}{8}$	109	109 $\frac{3}{8}$	109 $\frac{3}{8}$	109	109
S	3	108 $\frac{3}{8}$	110 $\frac{3}{8}$	108 $\frac{3}{8}$	110 $\frac{3}{8}$	108 $\frac{3}{8}$	110 $\frac{3}{8}$	108 $\frac{3}{8}$	110 $\frac{3}{8}$	109 $\frac{1}{8}$	110 $\frac{1}{8}$	109 $\frac{1}{8}$	110 $\frac{1}{8}$	109	110 $\frac{1}{8}$	109	110 $\frac{1}{8}$
M	5	110 $\frac{3}{8}$	110 $\frac{3}{8}$	109 $\frac{3}{8}$	109 $\frac{3}{8}$	110 $\frac{1}{8}$	110 $\frac{1}{8}$	109 $\frac{5}{8}$	109 $\frac{5}{8}$	110 $\frac{3}{8}$	110 $\frac{3}{8}$	109 $\frac{3}{8}$	109 $\frac{3}{8}$	110 $\frac{1}{8}$	110 $\frac{1}{8}$	109 $\frac{5}{8}$	109 $\frac{5}{8}$
T	6	109 $\frac{3}{8}$	109 $\frac{3}{8}$	109 $\frac{1}{2}$	109 $\frac{3}{8}$	109 $\frac{3}{8}$	109 $\frac{3}{8}$	109 $\frac{1}{2}$	109 $\frac{1}{2}$	109 $\frac{3}{8}$	109 $\frac{3}{8}$	109 $\frac{1}{2}$	110	109 $\frac{3}{8}$	109 $\frac{3}{8}$	109 $\frac{1}{2}$	109 $\frac{3}{8}$
W	7	109 $\frac{3}{8}$	110 $\frac{1}{8}$	109 $\frac{3}{8}$	110	109 $\frac{1}{2}$	110 $\frac{1}{8}$	109 $\frac{1}{2}$	109 $\frac{3}{8}$	109 $\frac{3}{8}$	110 $\frac{1}{8}$	109 $\frac{3}{8}$	110	109 $\frac{3}{8}$	110 $\frac{1}{8}$	109 $\frac{3}{8}$	110
T	8	110 $\frac{1}{8}$	110 $\frac{1}{8}$	109 $\frac{3}{8}$	109 $\frac{3}{8}$	110 $\frac{1}{8}$	110 $\frac{3}{8}$	110	110	110 $\frac{3}{8}$	110 $\frac{3}{8}$	110	110	110 $\frac{3}{8}$	110 $\frac{3}{8}$	109 $\frac{3}{8}$	109 $\frac{3}{8}$
F	9	110	112 $\frac{1}{4}$	109 $\frac{3}{8}$	112 $\frac{1}{4}$	110	112 $\frac{1}{4}$	109 $\frac{3}{8}$	112 $\frac{1}{4}$	110 $\frac{3}{8}$	112	110	111 $\frac{3}{8}$	110	112	110	112
S	10	112 $\frac{1}{2}$	114	112 $\frac{3}{8}$	113 $\frac{3}{8}$	112 $\frac{1}{2}$	114	112 $\frac{3}{8}$	113 $\frac{3}{8}$	112 $\frac{1}{2}$	114	112 $\frac{1}{2}$	113 $\frac{3}{8}$	112 $\frac{3}{8}$	113 $\frac{3}{8}$	112 $\frac{1}{4}$	113 $\frac{1}{2}$
M	12	114 $\frac{1}{4}$	116	114 $\frac{1}{4}$	114 $\frac{3}{8}$	114 $\frac{1}{8}$	116	114	114 $\frac{3}{8}$	114 $\frac{1}{4}$	116	114 $\frac{1}{4}$	114 $\frac{3}{8}$	113 $\frac{1}{2}$	115 $\frac{3}{8}$	113 $\frac{1}{2}$	114 $\frac{3}{8}$
T	13	115 $\frac{1}{4}$	115 $\frac{1}{2}$	114 $\frac{1}{2}$	115 $\frac{1}{8}$	115 $\frac{1}{8}$	115 $\frac{1}{2}$	114 $\frac{1}{2}$	115 $\frac{1}{8}$	115	115 $\frac{3}{8}$	114 $\frac{3}{8}$	115 $\frac{1}{4}$	115	115 $\frac{3}{8}$	114 $\frac{3}{8}$	115 $\frac{1}{8}$
W	14	115 $\frac{1}{2}$	118 $\frac{1}{2}$	115 $\frac{3}{8}$	117 $\frac{3}{8}$	116	118 $\frac{1}{4}$	115 $\frac{3}{8}$	117 $\frac{3}{8}$	115 $\frac{1}{2}$	117 $\frac{3}{8}$	115 $\frac{1}{2}$	117 $\frac{3}{8}$	118 $\frac{3}{8}$	118 $\frac{3}{8}$	117 $\frac{1}{2}$	117 $\frac{1}{2}$
T	15	118 $\frac{1}{2}$	119 $\frac{1}{8}$	117 $\frac{1}{4}$	119	118 $\frac{1}{2}$	119 $\frac{1}{8}$	117 $\frac{1}{4}$	119	118 $\frac{3}{8}$	119	117 $\frac{1}{2}$	118 $\frac{3}{8}$	118 $\frac{3}{8}$	119	117 $\frac{1}{2}$	118 $\frac{3}{8}$
F	16	119 $\frac{1}{2}$	119 $\frac{1}{2}$	117	117 $\frac{1}{2}$	119	119	117	117 $\frac{1}{2}$	118 $\frac{3}{8}$	119 $\frac{1}{4}$	117 $\frac{3}{8}$	117 $\frac{3}{8}$	119	119	116 $\frac{3}{8}$	117
S	17	117 $\frac{1}{2}$	117 $\frac{1}{4}$	116 $\frac{3}{8}$	116 $\frac{3}{8}$	117 $\frac{1}{2}$	117 $\frac{1}{4}$	116 $\frac{3}{8}$	117	117 $\frac{1}{4}$	117 $\frac{3}{8}$	116 $\frac{3}{8}$	117	117 $\frac{1}{8}$	117 $\frac{3}{8}$	116 $\frac{1}{2}$	116 $\frac{3}{8}$
M	19	116 $\frac{3}{8}$	116 $\frac{3}{8}$	115 $\frac{3}{8}$	116	117	117	115 $\frac{3}{8}$	116	117	117	115 $\frac{3}{8}$	116	116 $\frac{3}{8}$	116 $\frac{3}{8}$	115 $\frac{5}{8}$	116
T	20	116 $\frac{3}{8}$	118	116	118	116	118 $\frac{1}{8}$	116	118 $\frac{1}{8}$	115 $\frac{3}{8}$	118	117 $\frac{3}{8}$	118	116	118	115 $\frac{3}{8}$	118
W	21	118 $\frac{1}{4}$	119	117 $\frac{1}{4}$	117 $\frac{1}{2}$	118 $\frac{1}{4}$	119	117 $\frac{1}{4}$	117 $\frac{1}{2}$	118 $\frac{1}{4}$	119	115 $\frac{1}{4}$	117 $\frac{1}{2}$	118 $\frac{1}{4}$	118 $\frac{3}{8}$	117 $\frac{1}{2}$	117 $\frac{1}{2}$
T	22	117 $\frac{1}{4}$	120	117 $\frac{1}{2}$	119 $\frac{3}{8}$	117 $\frac{1}{4}$	120	117 $\frac{1}{2}$	119 $\frac{3}{8}$	117 $\frac{1}{2}$	119 $\frac{3}{8}$	117 $\frac{1}{2}$	119 $\frac{3}{8}$	117 $\frac{1}{2}$	120	117 $\frac{1}{2}$	119 $\frac{1}{2}$
F	23	119 $\frac{1}{2}$	119 $\frac{1}{2}$	118	118 $\frac{3}{8}$	119 $\frac{1}{4}$	119 $\frac{1}{4}$	118	118 $\frac{3}{8}$	119 $\frac{1}{4}$	119 $\frac{1}{4}$	118 $\frac{3}{8}$	118 $\frac{3}{8}$	119	119	118 $\frac{3}{8}$	118 $\frac{3}{8}$
S	24	119	119	117 $\frac{1}{2}$	117 $\frac{5}{8}$	118 $\frac{3}{8}$	118 $\frac{3}{8}$	117 $\frac{1}{2}$	117 $\frac{1}{2}$	118 $\frac{3}{8}$	119	117 $\frac{1}{2}$	117 $\frac{1}{2}$	118 $\frac{3}{8}$	118 $\frac{3}{8}$	117 $\frac{3}{8}$	117 $\frac{1}{2}$
M	26	117 $\frac{1}{4}$	118 $\frac{1}{2}$	116 $\frac{3}{8}$	118 $\frac{3}{8}$	117 $\frac{3}{8}$	118 $\frac{1}{2}$	117	118 $\frac{1}{2}$	117 $\frac{3}{8}$	118 $\frac{3}{8}$	117	118 $\frac{3}{8}$	117 $\frac{3}{8}$	118 $\frac{3}{8}$	117	118 $\frac{3}{8}$
T	27	118 $\frac{3}{8}$	118 $\frac{3}{8}$	117 $\frac{5}{8}$	117 $\frac{5}{8}$	118 $\frac{3}{8}$	119	117 $\frac{1}{2}$	117 $\frac{1}{2}$	118 $\frac{3}{8}$	119	117 $\frac{3}{8}$	117 $\frac{3}{8}$	118 $\frac{3}{8}$	118 $\frac{3}{8}$	117 $\frac{1}{2}$	117 $\frac{1}{2}$
W	28	117	117 $\frac{1}{4}$	115 $\frac{1}{2}$	116 $\frac{3}{8}$	117 $\frac{1}{4}$	117 $\frac{3}{8}$	115 $\frac{3}{8}$	116 $\frac{3}{8}$	117 $\frac{1}{2}$	117 $\frac{1}{2}$	115 $\frac{3}{8}$	116 $\frac{1}{2}$	117 $\frac{1}{4}$	117 $\frac{1}{4}$	115 $\frac{3}{8}$	116 $\frac{3}{8}$
T	29																
F	30	116 $\frac{1}{2}$	117 $\frac{1}{2}$	116 $\frac{3}{8}$	116 $\frac{3}{8}$	116 $\frac{1}{2}$	117 $\frac{3}{8}$	116 $\frac{3}{8}$	116 $\frac{3}{8}$	116 $\frac{1}{2}$	117 $\frac{3}{8}$	116 $\frac{1}{2}$	116 $\frac{3}{8}$	116 $\frac{1}{2}$	117 $\frac{1}{2}$	116 $\frac{1}{2}$	116 $\frac{3}{8}$

STOCKS ABROAD.

Reports of stocks in London, Trieste, and the seven principal continental seaports, are summarized in the following statement:

	Nov. 17, 1883	Oct. 20, 1883
Stocks Afloat and Ashore.	Barrels.	Barrels.
London	451,791	464,107
Trieste	68,807	67,952
Seven Continental Ports	1,896,212	2,056,806
Total Stocks afloat and ashore	2,416,810	2,588,865
Decrease in Stocks since Oct. 20	172,055	

A detailed statistical table giving the stocks on hand, the stocks in vessels on the ocean, and the amount unloading from the vessels at the different ports, is appended, which shows at a glance the condition of affairs abroad and the increase or decrease as compared with the corresponding period of 1882. The figures from London for 1882 are lacking.

STOCKS IN FOREIGN PORTS NOVEMBER 17, 1883.

	Stocks Week end'g Nov. 17		Stocks Afloat Week end'g Nov. 17		Unloading Week end'g Nov. 17		Grand Total Stocks Afloat & Unloading.		Receipts. Jan. 1 to Nov. 17.		Shipments Jan. 1 to Nov. 17.	
	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.
London		396,854		39,937		15,000		451,791		619,887		473,883
Trieste	47,621	8,284	33,895	34,523		26,000	81,516	68,807	241,370	114,594	235,733	175,664
Bremen	663,639	833,223	112,121	81,402	116,500	82,000	892,260	996,625	986,327	826,743	712,446	749,661
Hamburg	219,189	166,457	45,013	59,151	19,500	10,500	283,702	236,108	898,855	822,033	732,696	854,298
Antwerp	268,280	283,522	31,384	57,099	24,000	49,000	323,664	389,621	733,028	748,040	695,208	651,370
Rotterdam	70,955	68,018	6,062	13,032	28,500	8,400	104,617	89,450	249,347	173,306	193,090	180,460
Amsterdam	62,313	44,738		13,894	13,000	15,000	75,313	73,632	175,100	194,705	153,703	199,368
Stettin	68,882	76,357	10,883	12,015			79,765	88,372	272,217	234,340	232,431	191,684
Danzig	29,721	22,404	9,763				39,484	22,404	73,588	74,928	87,356	72,893
Total	1,382,079	1,494,719	215,226	236,593	201,500	161,900	1,798,805	1,896,212	3,388,462	3,074,095	2,806,930	2,899,143

	1880.	1881.	1882.	1883.
Total stocks exclusive Danzig, London and Trieste	1,014,367	830,600	1,352,358	1,472,315
Total afloat, exclusive Danzig, London and Trieste	259,089	229,081	205,463	236,593
Total unloading, exclusive Danzig, London and Trieste	58,000	243,400	201,500	164,900
Grand Total exclusive Danzig, London and Trieste	1,331,456	1,303,081	1,759,321	1,873,808
Total Shipments exclusive Danzig, London and Trieste	90,184	125,386	109,154	111,299
Total Shipments since January 1, exclusive Danzig, London and Trieste	2,394,256	2,913,601	2,719,574	2,826,250

PETROLEUM EXPORTS.

THE exports of refined, crude and naphtha, from all United States ports from Jan. 1 to Dec. 8, for the years 1882 and 1883, were as follows :

	1883. GALLONS.	1882. GALLONS.
From Boston	4,374,076	6,777,695
Philadelphia	72,545,022	83,872,703
Baltimore	9,820,239	11,842,350
Richmond	173,449	382,239
Total	86,912,786	102,874,987
From New York	402,265,671	369,959,533

Total exports from U. S.	489,178,457	472,834,520
Increase	16,343,937	

The appended table from *The Shipping List*, Dec. 12th, gives the total exports of refined, crude, naphtha and residuum from New York to foreign countries from Jan. 1st, to Dec. 12, 1883, and for the same time in 1882.

	1883.	1882.
REFINED.		
GREAT BRITAIN.—London	35,225,167	24,101,137
Liverpool	10,301,271	9,214,678
Bristol	3,335,978	3,551,385
Ireland	5,486,840	5,010,725
Other ports	6,088,538	5,955,610
GERMANY.—Bremen	44,577,342	46,701,333
Hamburg	32,275,401	33,379,714
Konigsburg and Stettin	4,766,126	10,548,384
Dantzic	1,110,141	2,120,057
Other Ports	835,570	1,282,805
FRANCE.—Marseilles		331,945
Havre		188,730
Norway and Sweden	7,189,009	6,789,961
Russia	1,539,156	1,609,272
Denmark	8,545,271	7,254,729
Belgium	35,958,106	26,007,217
Holland	13,663,340	12,853,527
Spain	147,770	198,733
Portugal	2,009,420	1,529,468
Gibraltar and Malta	2,097,608	1,314,621
Italy	2,145,446	1,687,382
AUSTRIA.—Trieste, etc	14,638,482	12,012,633
Greece	1,280,410	379,300
Turkey in Europe	3,292,551	3,876,839
Turkey in Asia	3,080,742	1,112,300
India, Siam, etc	15,841,990	20,354,060
China, Japan, etc	24,336,810	29,272,250
East Indies	39,381,650	25,020,225
AFRICA.—Alexandria, etc. E	2,813,050	1,452,100
Canary Islands	153,849	119,370
Other Ports	4,745,629	3,590,574
Australia	2,246,846	2,517,675
New Zealand	613,900	640,098
Sandwich Islands	202,500	109,565
SOUTH AMERICA.—Brazil	5,525,974	5,031,155
Argentine Confederation and Uruguay	3,670,550	2,979,679
Chili and Peru	1,380,800	1,536,710
U. S. Columbia	309,956	189,766
Venezuela	622,604	496,634
Other Ports	117,461	136,490
Central America	223,938	182,467
Mexico	1,275,913	1,169,778
British North American Colonies	1,168,614	635,400
Cuba	225,936	751,964
British West Indies and British Guiana	1,528,964	1,335,562
Other West Indies	869,517	1,166,936
Total Galls.	337,845,936	317,691,943
CRUDE.		
FRANCE.—Havre	10,086,215	6,917,706
Marseilles	3,337,485	1,942,554
Bordeaux	2,224,280	1,929,769
Dunkirk	7,189,449	4,187,392
Other Ports	7,917,431	7,300,343
Antwerp		1,100,621
Bremen	753,616	148,235
Norway and Sweden	62,374	12,674,730
Spain	11,988,161	3,135,076
Cuba	1,982,803	
Other Ports	2,193,471	
Total Galls.	47,735,285	39,336,426
NAPHTHA.		
Great Britain	5,615,859	6,905,233
France	5,637,097	4,857,969
Germany	1,668,038	1,235,525
Other Europe	1,665,163	1,225,540
Various Ports	98,293	174,443
Total galls.	14,684,450	14,398,710
RESIDUUM.		
To all Ports	1883. 6,080,797	1882. 4,483,109
GALLONS.		
Total Refined since January 1, actual shipments	340,961,476	
do do do do crude equivalent	454,615,301	
do Crude do do actual shipments	47,806,720	
Grand Total Crude and Crude equivalent galls.	502,422,021	
Same time, 1882	462,925,683	

The following table shows the number of vessels, loading and to load with Petroleum at the principal American shipping ports, December 12th, 1883:

PORTS.	Refined Bbls.	Refined Cases.	Crude.	Naph.	Res.	Total.
New York	39	11	20	2	.	72
Philadelphia	16	14	2	1	.	33
Baltimore	3	.	.	.	2	5
Boston . . . . .	.	2	.	.	.	2
Total	58	27	22	3	2	112

BALLTOWN AND COOPER.

At this writing, December 17th, in the absence of something more important, the eyes of the speculative oil trade are directed towards May, Kelly & Grandin's No. 18, at the extreme southwestern end of the belt. It is located on the south side of the Tionesta on a 45° line with and fifty rods distant from No. 17. The large wells of the Balltown development are found along a line running in a northeasterly and southwesterly direction, which has a magnetic bearing of 52° and 10'. Of late, May, Kelly & Grandin are paying less attention to lines and locating advance wells in front of those which show the most prolific sand rock, having the greatest thickness. No. 17, which guided them in finding a position for No. 18, produced 1,015 barrels in her first twenty-four hours and had the usual allowance of sand rock. No. 18 is expected to reach the sand and be opened up as early as December 20th. The owners have erected two large tanks and are expected to find wells of the regulation calibre on the south side of the stream.

Since the issue of the November AGE there have been no changes in the outlines of the field and that area of two square miles is all that appears in sight. The field, except at the southwest, is thoroughly defined. The noticeable feature of the Balltown district is the tenacity with which its production has held to a point near the 4,000 barrel mark during the months of October and November. Speculators have been watching and waiting for a decline in this section somewhat similar to that observed in Cherry Grove last fall, but for good reasons it has not come. In round numbers Cherry Grove had an area of about 2,000 acres upon which from 375 to 400 wells were drilled in six months. In a longer space of time sixty-four wells have been completed in the Balltown district on an area of 1,200 acres. One-sixth of the same number of wells on more than one-half of the area could not be expected to decline at so rapid a gait. Besides, in the Cherry Grove field the gas pressure was stronger than in Balltown, and the oil

was found in a less vertical depth of rock. Dividing the area of the Balltown field by the number of wells the territory is found to be sparsely divided and its decrease in consequence will be more gradual than its phenomenal prototype. The Balltown field is being run under high pressure. Wells owned by rival companies along dividing lines are being urged to their utmost by the agitation of the drill and the extensive use of glycerine. The firm of May, Kelly & Grandin have two strings of tools at work constantly cleaning out fourteen wells, and sometimes a third is employed. Throughout the district there is a reckless waste of the gas which should have been husbanded to make the crude more elastic while it is being taken from the rock.

The production varies between quite wide limits. Several shots and drilling one or more wells deeper which have not gone through the sand will raise the yield 1,000 barrels above the monthly average. This cannot continue much longer as all the old wells have found the bottom of the sand, and with these glycerine will be the only persuasive force to quicken their yield.

The eight wells finished in the district during November had a production on the last day of the month of 665 barrels. December 18th there were four wells drilling and four rigs up and building, the only one of importance being May, Kelly & Grandin's No. 18.

For the twenty-four hours ending Thanksgiving morning, the district showed a production of 5,000 barrels. During the previous day the Howe Oil Company had drilled Nos. 8 and 14 deeper and a number of wells had been shot with good results in various parts of the field. A gauge taken by the scouts December 13 showed a yield of 3,985 barrels. The Porcupine Oil Co.'s No. 15 was drilled into the sand December 14th and on the 15th the production was found to be a little above 4,000 barrels. There are bull features to be seen in this out of the way field, but it will take a little time before the force is felt in a positive manner. The sucker rod is being introduced and a number of wells are now pumped. When most wells are left to themselves their production soon assumes proportions which please those gentlemen who are seeking to enhance the value of the product. The days of this white sand belt are surely numbered and in her domain the footfalls of decay may be heard, but those who hurry the indications too much are likely to deceive themselves.

COOPER.

The production of the Cooper district for the month of November averaged better than 3,000 barrels per day, and during the present month the gauge pole shows that it is hovering about the 3,000 barrel point. Of late the interest in the development has been divided between the northeastern and southwestern extremities of the district.

Porter and McKinney & Co. are drilling northwest of Henry's Mills, on the ground separating the old Sheffield from the Cooper development. Porter's well, eight hundred feet northwest of the Henry's Mills gas well, is nearing the sand at this writing, December 18th. At the southwest end of the belt on lot 8 of the Cooper, Melvin, Walker, Shannon & Co.'s No. 27 is found. It is located between the Clapp No. 1 and the Hight well, drilled by Fertig & Henne, on the Enterprise Transit Co.'s lands east of the Clapp lot. This No. 27 well started above 500 barrels when it was drilled into the sand. Its size was unexpected and the owners will look for oil on the property across the Clapp lot to the southwest. The chances are, however, much against the Cooper development ever crossing the Tionesta.

On the 30th of November a gauge of the Cooper district taken by an AGE representative showed a production of 3,444 barrels from 137 wells. The gauge taken by the scouts December 13th showed a yield of 3,284 barrels from 141 wells. At this time there are five rigs up and building and nine wells drilling.

The Reid & Brenneman (now owned by the McCalmont Oil Co.) second sand well on lot 440 is now completely surrounded by holes dry in both sands. No. 16, northeast of this well, was completed in November, and closed the dusty circle.

Horton, Crary & Co.'s well in the town of Sheffield failed to disclose any traces of crude.

Curtis & Co.'s well, near Ludlow, is quite a heavy gasser, with traces of crude. A few wells are being pumped on the Cooper, and glycerine has always been a necessary adjunct in operating for oil in this section.

On the 16th of last month General Grant visited the Kinzua bridge, accompanied by the following New Yorkers: Hon. Franklin Edson, Mayor; Hon. J. Nelson Tappan, City Chamberlain; Ferdinand Ward, James R. Smith and Colonel Fred. D. Grant. The visit was made on the invitation of B. W. Spencer, Treasurer of the Erie Railway, who piloted the party through in President Jewett's elegant private car. A large and enthusiastic crowd of Greenbackers, Prohibitionists, Democrats and Republicans greeted the Chieftain at the depot.

STOCKS AT WELLS.

Reports have been received showing the amount of stocks at 5,435 Bradford wells on the 1st of December. A small proportion of this number gave reports for only one month, so that the comparison had to be made between 5,308 wells on the 1st of November and 5,321 on the 1st of December. The additional number of wells is made from purchases or the completion of new wells. The same persons who possessed 5,308 wells on the first of November had thirteen more than this number on the 1st of December. The entire gross stocks at 5,308 Bradford wells were 343,341 barrels November 1st, an average per well of 64.7 barrels.

At 5,321 wells the total stocks December 1st were 350,715 barrels, an average of 65.9 barrels to the well. These results are tabulated as follows:

Time.	No. Wells.	Gross Stocks.	Average per Well.
December 1, 1883	5,321	350,715	65.9
November 1, 1883	5,308	343,341	64.7
Difference	13	7,374	1.2

The number of wells in the Bradford field connected with the pipe lines on the 1st of December is estimated at 12,750. The above figures show an average increase in the stocks at wells of 1.2 barrels. If this average holds good for the entire number of wells in the field, the total stocks must have increased 15,300 barrels during the month of November. Or, in other words, there was an accumulation of stocks in the tanks of the producers of 15,300 barrels during the month, an average of 510 barrels a day. And this amount must be added to the pipe line runs to obtain an approximate estimate of the production of the Bradford field. The runs from both lines were 34,516 barrels per diem. Adding the increase in stocks, Bradford's daily production for November would be figured in the following manner:

Average Daily Pipe Line Runs	Barrels.
Daily Increase of Stocks at Wells	510
Bradford's November production, est	35,026

THE BRADFORD FIELD.

Estimated daily production for November	Barrels.
do do do October	35,026
do do do September	35,654
do do do August	34,965
do do do July	35,087
do do do June	35,530
do do do	35,279

The above estimates have been derived from carefully compiled reports of stocks at wells, for the months named, and, although absolute correctness is not claimed for them, they are sufficiently close to determine the fact that Bradford's daily production for the past six months has been held very near 35,000 barrels. These figures have been maintained by the expenditure of tons of nitro-glycerine, and fresh perforations of the sand rock, in spots neglected during the first mad onslaughts of the drill.

The daily production of the Bradford field for the month of November, 1881, as shown by the report of the Producers' Committee, was 64,766 barrels.

THE ALLEGANY FIELD.

There was a general accumulation of stocks at wells in the Allegany field during November. One hundred and sixteen new wells were completed and the favorable weather was made the most of by the producer who desired to increase the flagging output of his old wells by torpedoing and the insertion of sucker rods.

Reports of stocks at wells received from the Allegany field are tabulated as follows:

Date.	No. Wells.	Gross Stocks.	Average per Well.
December 1, 1883	508	27,788	54.7
November 1, 1883	493	26,331	53.4
Increase per well			1.3

With 3,111 wells on the 1st of November, and 3,227 on the 1st of December, the above results furnish the following computation:

Time.	No. Wells.	Average per Well.	Gross Stocks.
December 1	3,227	54.7	176,516
November 1	3,111	53.4	166,127
Increase	116	1.3	10,389

At this rate the total stocks in the field increased 10,389 barrels during the month, or 346 barrels per diem. The runs from both pipe lines were 12,332 barrels a day. Adding the increase in stocks, the daily production of the Allegany field was 12,678 barrels during the month of November, a decrease of 411 barrels a day from that of the preceding month.

Allegany's November production is estimated at	Barrels.
Allegany's October production is estimated at	12,678
Allegany's September production is estimated at	13,089
Allegany's August production is estimated at	12,335
Allegany's July production is estimated at	12,264
Allegany's June production is estimated at	12,345

FOREST, WARREN AND LOWER COUNTRY.

Reports were received from groups of wells in the different sections of Forest and Warren counties. The number of wells on the first of each month with their averages are tabulated as follows:

Field.	No. Wells.	No. Wells.	Average per Well.	Average per Well.
	Nov. 1.	Dec. 1.	Nov. 1.	Dec. 1.
Cherry Grove	45	46	128	118
Cooper	86	94	284	267
Miscellaneous	63	65	45	49

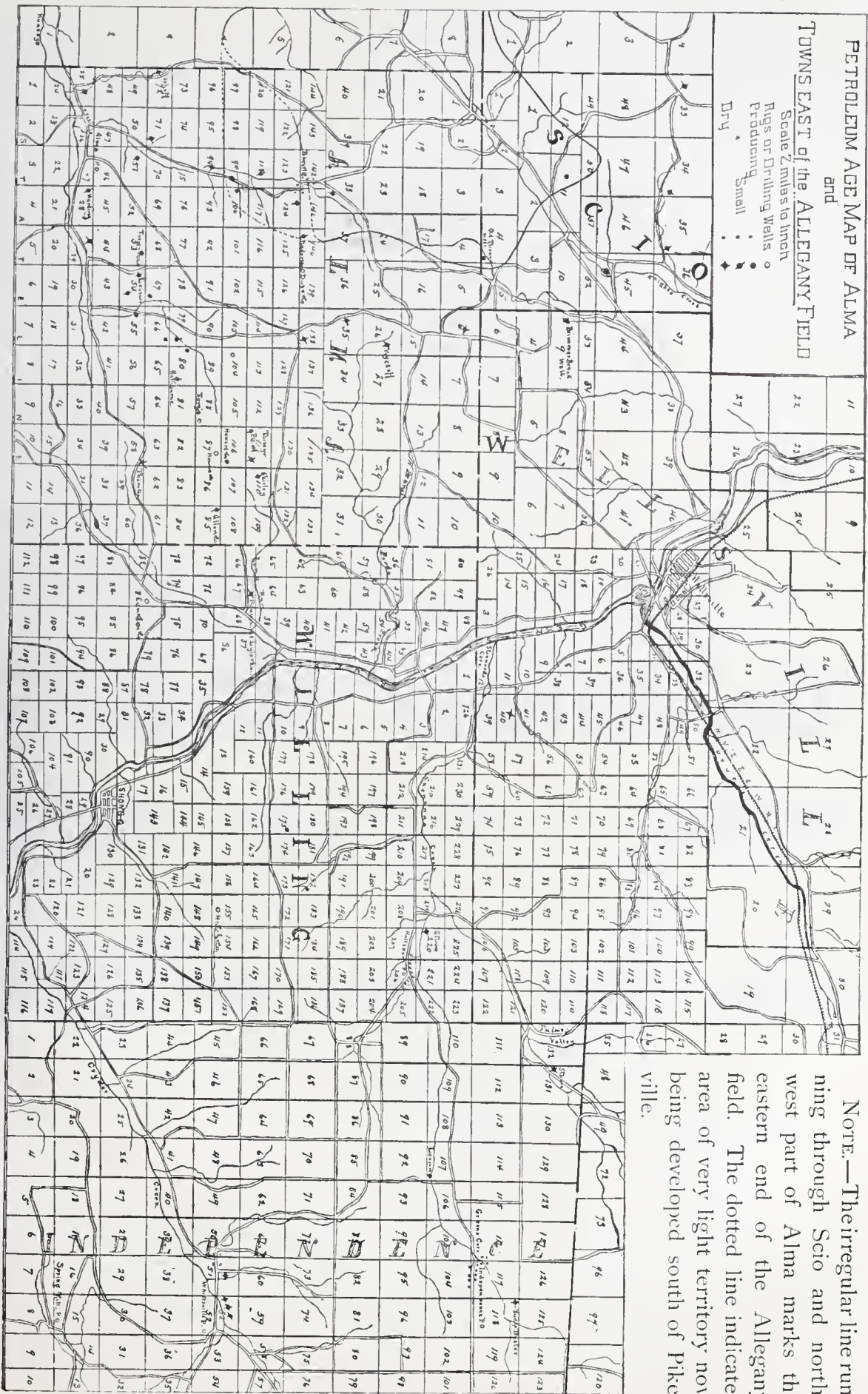
The outside pipe line runs, *i. e.*, for all sections except Allegany and Bradford, were 18,433 barrels. The outside runs taken for a number of consecutive months, fairly represent the production. Assuming that the outside runs indicate the outside production, an estimate on the production of the region for November would sum up as follows:

Field.	Barrels.
Bradford	35,026
Allegany	12,678
Outside	18,433
Estimated daily average of region for November	66,137

THE OCTOBER PRODUCTION.

Field.	Barrels.
Allegany	13,089
Bradford	35,654
Outside	19,238
Estimated daily average for region	67,981
Estimated decrease in production entire region	1,844

THE PETROLEUM AGE.



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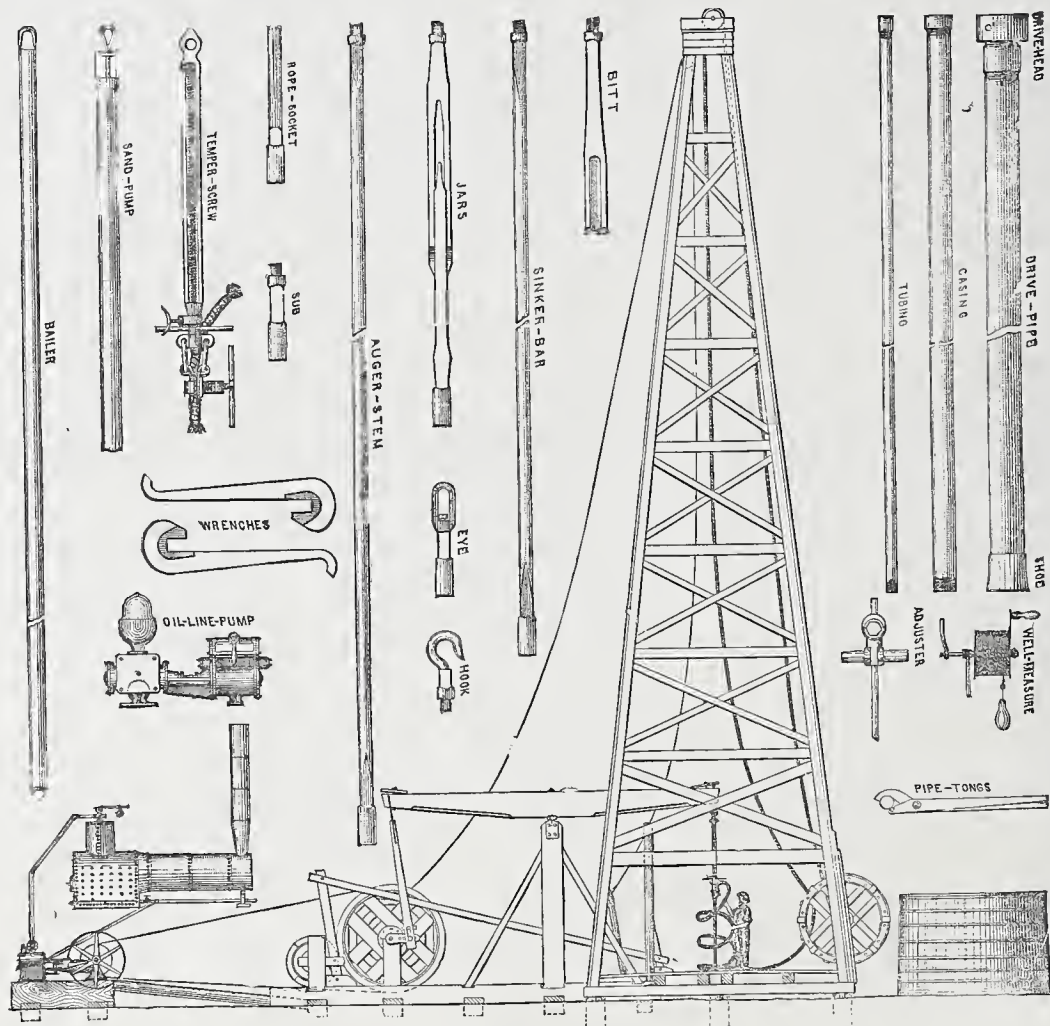
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THE PETROLEUM AGE.

VOL. II.

BRADFORD, PA., JANUARY, 1884.

No. 12

BRADFORD'S NEW OIL EXCHANGE.



THE PRODUCERS' PETROLEUM EXCHANGE.

The cut in this issue of the AGE is a faithful portrait of Bradford's latest acquisition in the line of a public building, and the newest addition to the ranks of the petroleum marts of America. The new Exchange received its charter in December 1882, and commenced the transaction of business in Armory Hall with the beginning of 1883. It had five hundred members at the outset, with capital shares at one hundred dollars each. The remarkable rapidity with which these shares were subscribed for is one of the striking features of oil region enterprise. Plans for the erection of a building were immediately entered upon, but it was not until the June following that a site was secured and the ground broken. The new Exchange is of brick and fronts the public square at the upper end of Main street. It is a solid and substantial looking structure. The main part is 98x81 feet and three stories high and will contain four large and commodious storerooms, besides numerous offices, etc. Back

of the main portion is an addition 64x110 feet in area, which contains an elegantly appointed Assembly Room, 52x53 feet in dimensions, besides a reading room, a directors' room, two telegraph offices, cloak rooms, closets, etc., and a large and convenient public gallery.

On January 2d of the present year, this flourishing organization took possession of its new quarters. There were no formal opening ceremonies on account of the main portion of the building yet remaining unfinished. Before the opening of business, President Kirk called the Exchange to order and delivered the following address:

"I am instructed by your board of directors to present to you this beautiful hall and welcome you to its permanent occupancy, a pleasant duty that I am proud to have the honor of being called upon to perform. It is proper and customary by appropriate ceremonies to celebrate the completion and occupancy of buildings of a public character. Our necessities, however, have compelled us to occupy before completion, and

as we could not offer proper accommodations and entertainment to the public it has been deemed best to postpone the formal dedication until the final completion of the building. The directors, however, thought that your occupancy of this part and commencement of business herein was worthy of a few preparatory remarks at least, and have kindly accorded me that honor.

The directors, your servants to whom you entrusted the location and erection of this building have had two great objects in view. First, to furnish you a proper place commensurate with the business you do, furnished with every facility with which to transact your business—a place that would be second to none. In the second place to so invest the money of the stockholders as to make it self-supporting, remunerative and yielding a revenue to those who contributed their money. That they have succeeded in the first point I think is conceded by all. I have not heard a complaint from any member or person to whom I have spoken. They all seem gratified and pleased with this room and its appointments.

On the second point I know they have succeeded. Our rent roll already shows that this building will be self-sustaining, and a source of revenue to its owners. It would be injustice, even at this time, not to testify our appreciation of the faithful and valuable building committee. To Messrs. McKevett, Williamson and Lockwood is the honor and glory due. They have watched this building and superintended its construction from the time the debris was removed for the foundation up to the present time. A part of their work is before you and speaks for itself. They need no encomiums from me. Like the Roman mother who, when requested to contribute her jewels for the preservation of the government presented her sons to the rulers of her people, and said: "These are my jewels" so your building committee, if requested to speak, have but to point to their work that surrounds you and say, "There is our speaker." I therefore feel that any further remarks upon the building and its surroundings would be superfluous. You all see, appreciate and admire its beauties, comforts and advantages. You have also the proud satisfaction of knowing that it is your own—purchased with your own money and nearly paid for. It is one of the most worthy objects of ambition that man can have, the desire to own his own house and have a home he can call his own, and by none is it so much appreciated as

by the emigrant from other lands. I was much pleased and gratified by the excessive joy of a poor Irishman who had escaped from poverty and the rack rents of Ireland, who had come to Pittsburgh and in time bought a small lot on a rocky hill, put up a small cabin, paid for it in gold, and at last came home with the deed, dancing for joy, shouting, "It's mine, it's all mine! Who would have thought I ever should own my own house, and be jabbers the lawyer says I own it from hill below to the heavens above."

With similar feelings of proud satisfaction no doubt every member of this Exchange has entered this room to-day. They feel they have something to be proud of, something they can call their own, something they have a right to enjoy and where to transact business is a pleasure. They have also the satisfaction of knowing they have contributed and assisted in the erection of a building that benefits, adorns and gives an air of permanence to this the Queen city of the petroleum industry. We of Bradford have been slow to realize the advantages of our position, and would not credit the thought that it was destined to be a permanent city. We of the oil country have been so long flitting from place to place, a moving caravan so long used to see cities, towns and villages "vanish like the baseless fabric of a vision, leaving not a wreck behind," that here we could not be induced to build anything but temporary structures, expecting yearly to see all vanish like the others. Instead of this every year comes an increase. Every year we get additional proof that at last we have reached a permanent city of abode. When I look over the map of the possible productive territory from Wellsville to Beaver, I see its vast extent; how little of it has been opened up. What vast treasures these little patches have produced, the daily evidence I have of how little territory a dry hole condemns, and when I see railroads upon railroads pointing and running in every direction bringing the possible territory within easy access of our homes I have no doubt of the permanency of Bradford. When I see and experience the lasting qualities of our wells, that wells six and seven years old, still continue to pour forth their regular quota, I am amazed, and ask where can the oil come from? And my engineer replies one inch deep on an area of five acres, the ordinary allowance of a well amounts to thirty-two hundred barrels, and I reflect that a porous rock from thirty to one hundred feet thick underlies this entire section and must con-

tain many inches of oil. I have no doubt of the permanency of Bradford. When I find that our daily income at present prices amounts to \$40,000 per day in the Bradford district alone, or upwards of \$15,000,000 per annum, that all but the expense of pumping is profit, having long since paid for themselves, I have no doubt of the permanency of Bradford. It is a slang phrase to hear men speak of such a place as "God's country." Bradford has been indeed "God's country" to many a poor man. Never in the history of any industry have so many poor men improved their condition and obtained what a few years ago would have been deemed wealth and affluence. Why, what we were and what we have been. We were "hewers of wood, drawers of water, rail splitters, ploughmen and cheese makers." There is not, I venture to say, an aristocrat of the second generation in McKean county. We might well ask with the psalmist, "what are we, or our father's house, that we have been brought hitherto."

With such a population, such men of wealth, and such surroundings, we should banish all thought of change. The money that is made here should be spent here. Our city authorities have at last realized that Bradford is permanent, and propose giving us pure water. Our school authorities have made our educational facilities exceeded by none. Our climate and everything warrants a permanent population. When I find that our machinery, our tools and our artisans are in demand all over this continent and Europe to search for oil, gas, water and other treasures of the earth, I feel that our city must be the centre of this business. We should manufacture all the machinery, tools, cordage and implements required, and furnish from our school of industry the skilled artisans to operate the same all over the world. For my part I expect my children's children to the "third and fourth generation" to gather the oil and realize the benefits of my investments, and I expect to see the banks of the Tuna, Kendall and Foster lined with the palaces of wealth and affluence and their owners enjoying the products of the wealth with which they are surrounded. To do this we must have confidence in ourselves. We must assert ourselves and maintain our rights politically, commercially and socially. We must not permit any monopoly to stand in the way of our advancement. Fuel is an absolute necessity. We should have it here in greater abundance and at a much cheaper rate than any other community. The best fuel ever God made is wasting on a "thou-

sand hills" around us, yet, strange to say, we are paying two prices for this necessary article. This fuel should be the only fuel used in our shops and homes, and it can be furnished at such prices as will defy manufacturers to compete successfully with our artisans. This we can have. We have but to speak to obtain it. Politically our existence is a mockery and a sham. The constitution of our country and state provided and guaranteed us certain rights. They provide that our numbers shall be taken every ten years and for that time we shall have representation in all the departments of government, according to our numbers. It said to us when we entered here forty thousand strong that we were entitled to a separate judicial district, to a judge of our own selection; yet we have been attached to a small and insignificant county in a wilderness, and a judge forced upon us for the next ten years, and we must travel to a distant point for justice. It guaranteed to us two representatives in the lower house of the councils of the state. Yet for six years at least, of the ten, we are doomed to have but half the representation to which we are entitled.

Senatorially we were at least entitled to be the centre of a senatorial district, and to have a controlling voice in the selection of that official, yet for eight of the ten years we are compelled to submit to the dictation of Potter, Cameron and Tioga, communities with which we have no similarity of interests.

Congressionally we are in the same condition. For six years of the ten at least we must continue to be the tail end of a wildcat district. Politically we amount to no more to-day than when the population of McKean county consisted of a few lumbering camps in the wilderness. Our representatives must be held accountable for this. They have totally failed to represent us and protect our interests. One of them, with a vulgar display of wealth, has tendered money in place of services. We should say, "Thy memory perisheth with thee; having failed to obtain our rights you must retire; having failed to shoot, you must give up the gun."

Fellow members, let us realize the importance of our position, and make this Exchange what our number, our capital and building enables us to be, the head centre of commerce in petroleum."

The total clearances at the Bradford Oil Exchange for the year 1883 were 1,468,506,000 barrels.

A FROZEN WELL.

Among the many curious phenomena, with which nature here in the oil regions is prolific, that of a frozen gas well may be considered among the most remarkable. From John F. Carll's Geological Report on Warren County and the Neighboring Oil Regions, we extract the following account of the Hague, or "Sheffield Gas Well," which was drilled in 1875:

"In drilling this well a sixteen-foot conductor was used and a nine-inch hole started in the bed-rock. A strong water course encountered at seventy feet necessitated the insertion of ninety feet of eight-inch casing. From the bottom of this an eight-inch hole continued down to about one hundred and seventy-five feet, where the ordinary five and five-eighths casing was put in. After this no more water appeared until the drill reached a depth of four hundred and eighteen feet, where a little salt water came in, but not enough to be considered detrimental. Subsequently, however, as we shall see further on, this water caused one of the most remarkable accidents that ever happened to a well.

Some show of oil was seen at 1,035 feet, and at 1,045 feet the well was torpedoed and tested. Not proving productive, it was sunk deeper, and at 1,350 feet reached the gas sand. Here the flow of gas was so strong that every device for introducing water to drill with failed. Attempts were made to lower water in a sand pump arranged to open when it struck bottom, but the water froze in the sand pump and came up in it as ice. This was in June. For a considerable distance below the gas vein the drill had to be slowly forced through dry rock; then some water could be gotten to the bottom and the boring continued down to 1,645 feet.

In March, 1877 (the spring following the laying of pipes to Sheffield), the gas weakened and finally stopped flowing entirely. In sounding the well it was found to be bridged by some obstruction above the gas vein. Tools were swung and run down to cut out the barrier. After working a while with a reamer, the sand pump was inserted and, very much to the astonishment of all present, brought up only water and pounded ice. It was then realized that the salt water coming from above had fallen to the gas vein and been frozen to the wall, after the same manner that ice had been formed in the sand pump while drilling, until it had gradually filled the whole well-bore and completely stopped the flow of gas. The tools were kept in motion twenty-four hours—all the time drilling in ice—when sud-

denly they broke through and an expansion or explosion of the pent-up gas occurred which threw the tools, with the one hundred and seventy-five feet of five and five-eighths inch casing, the ninety feet of eight-inch casing, and the conductor completely out of the ground. The casing shot up through the derrick, almost demolishing it, and coming down, toppled over and broke into sections. The seventy foot water course now being opened, flooded the well, and the surface, no longer supported by the conductor, caved in; making the ruin complete. The driller, noticing instantly when the gas struck the tools, rushed from the derrick and fortunately escaped without serious injury.

No doubt the cable and tools caused the casing to be thrown out. First, the tools were lifted by the gas; as they rose the slackened cable coiled and kinked into a wad, which shot up and wedged into the five and five-eighths inch casing. When that started upward the cable below it spread out and wedged in the eight-inch hole with sufficient force to carry the eight-inch casing also.

The flooding and caving of the well mouth soon checked the gas and forced it to find exit in a number of vents around the pool at the surface.

After working four or five weeks the damages were repaired and casing was inserted below the salt water vein, since which no trouble from freezing has occurred, and the gas still flows copiously, although, probably, with not so great force and volume as when the well was first opened."

The export of petroleum from the United States, crude equivalent, for the week ending December 25, was 7,381,943 gallons, against 9,853,128 in the preceding week. The total export from the United States from January 1, 1883 to January 1, 1884, was 636,363,869 gallons, against 612,113,350 gallons in 1882, a gain in the current year of 24,250,519 gallons, or 577,000 barrels, as compared with the exports in 1882. The exports from New York for the week ended December 29, amounted to 4,846,180 gallons, and for the year from January 1 to December 29, to 514,887,992 gallons, against 483,576,495 gallons in a corresponding portion of 1882, showing a net increase from New York alone of 31,311,497 gallons exported between January 1 and December 29, 1883, or 745,000 barrels, as compared with a like period last year.—*Bradstreet's*.

UNDER WHAT CONDITIONS DOES A LAMP EXPLODE?

Editor AGE: The general answer to this question would be, "under all conditions lamps are never safe; they are liable to go off at any moment."

These explosions are supposed to be of such frequent occurrence, and the effects so disastrous that we have ceased to inquire as to the conditions under which the explosions take place. We are almost as slow to look into the matter as we would be to examine the cause of irregular explosions of nitro-glycerine—such a dread fills the general mind on this subject. The "accusing wires" bring us the daily reports; we read the accounts with horror, and then lay the subject aside.

I have asked very many about the matter, but have so far found not one who has actually witnessed an explosion. One man at first said he had seen a lamp explode, but on being questioned, said, it did not exactly explode, but the vapor inside the lamp became cloudy and disturbed and he seized the lamp and threw it out of the window, thus preventing an explosion manifestly close at hand. Another told me he had a lamp explode that very morning—did not see it himself, but saw the lamp afterwards. The lamp was broken and the oil ran out. On further examination he reports the lamp broken evidently by a blow from without, while it was in the hand of a servant. Another reports that a lamp exploded in his house. His son was reading while lying in bed. The lamp exploded and set the bed on fire, but he could not learn exactly how. These are the nearest approaches to real explosions that I have found. It is singular that these things rarely occur in presence of the owner of the house.

Those who have made the subject a study advise as the result of their inquiries as follows:

That we fill the lamp daily.

That we use a burner with a vent tube, which must be kept open.

That the wick closely fill the tube, so that it may not drop down, and that its burning point be well raised above the lamp.

That we never blow into the top of the chimney, and that we use oil of high fire test—120° to 150°.

In order to test some of these points I have made a few experiments, which I beg leave to report through your columns.

Taking a small vial two inches long and one-half inch in diameter, with a mouth three-eighths

of an inch broad I filled it with benzine of about 70° gravity and set fire to it, using a small wick not more than one-eighth of an inch in diameter. It burned rapidly with a large flame covering the whole mouth of the vial and extending three or four inches high—evidently a gas flame—as the vial became heated at the top, but the benzine in the vial did not ignite, though filled up to the neck.

As the benzine was gradually consumed a smoky white vapor filled its place in the vial. This vapor I tried to ignite by blowing down into the mouth of the vial. By repeated trials I succeeded in blowing out the flame, but did not set fire to the gas in the vial. Lighting it again I pressed the burning wick down into the vial. The wick was immediately extinguished, showing that the smoky vapor was not dangerous. To make sure, I made a torch of a splinter dipped in benzine and inserted it into the vial. The flame on the splinter was as thoroughly extinguished as if dipped into water. So far as it entered the vial, following down on the stick as I withdrew it, and again going out as I repeatedly lowered and raised the torch in the mouth of the vial. I made a second trial of the benzine, putting but a small quantity in the bottom of the vial say one-half inch deep, and allowing it to stand in a warm room to permit the gas to rise and thoroughly fill the vial, and then I applied a torch as before. The gas flashed at the mouth of the vial but the torch was extinguished as far down as it entered the gas, as before. I was unable to light the benzine in the bottom of the vial or to explode the gas.

Thinking possibly the benzine had generated its gas too rapidly to allow the formation of that explosive compound of gas and air, in which the air largely predominates, something like eight or ten to one, I made a trial with headlight oil said to be 150° fire test, by putting a small quantity (one-half inch) in the bottom of the vial and burning it with the same small wick and open mouth as before. The results were not different. The same white vapor filled the vial—perhaps a little whiter than before—but equally non-explosive and non-combustible.

I made a third trial with crude oil, filling the vial about half full and burning it as before. The oil was not fresh from the wells, but had stood in a bottle and was about 30° gravity, originally a sample of Cherry Grove production. It burned more slowly than either the headlight or the benzine, and when about two-thirds consumed it went out. Hoping now to generate some of

those explosive gases which refiners say are evolved in the last stages of a destructive distillation, I placed the vial on the stove which was too hot to bear the hand on, and again lighted the wick. The white fumes immediately began to descend from the flame in jets, like little wreaths of snow, and filled the vial with a dense white vapor—probably the vapor of water—(the product of combustion) mingled with the gases of the oil. An offensive pungent odor arose, reminding one of the odor from a refinery in the last stages of its distillation. When the oil was all evaporated I tried to explode or ignite the vapor in the vial, but as before without success.

These experiments may have been on too limited a scale to fairly represent the conditions of a lamp. They can be easily repeated with lamp instead of vial. But at all events they ought to show us, what everybody is supposed to know, that oil—whether light or heavy—and gas, also, in its native state, are not explosives; nor even inflammable, without air or oxygen to support the flames.

Still we should not shut our eyes to the fact that an explosive compound, or mixture of gas and air, is possible. This mixture sometimes occurs at drilling wells, with disastrous results. It generally happens when a large amount of gas is discharging into the open air. Still with these it is by no means an invariable result. But where the gas is weak through continually flowing out from the well, it has not been known to exist. Drillers often set fire to the gas at the well mouth to test the amount, and no explosion occurs, nor combustion, below the mouth of the well. This might represent in a coarse way an oil lamp, with a little oil at the bottom, slowly discharging gas. Drillers have no fears of this class of wells. Whether this explosive mixture can be formed in an ordinary lamp is a matter of great doubt; the proportions of air required being so much greater in volume than the gas, and the gas being generated in the lamp so as to keep the empty space continually filled. If the heavy oils are too slow in the production of the gas for this purpose then it would appear that the more readily the gas is evolved, that is the lighter the oil, the safer from explosion, and this is possibly the case. But of course light oils are not safe to handle, especially by careless servants, where the breaking of a lamp might be disastrous. And here is probably the secret of most, if not all lamp explosions, and the remedy would seem to be *lamps that will not break.*

This would probably save nine-tenths of all the explosions, and perhaps the other tenth.

Hoping to stimulate inquiry on this subject, we will close with our initial question changed from one of conditions to one of fact—Do lamps ever explode?

Respectfully,

INQUIRER.

STANDARD OIL COMPANY INVESTIGATION.

As a matter of history, and of especial interest at this time, the message of Governor Pattison, in relation to the Standard Oil Company and E. G. Patterson; the names of the committee of investigation, together with the resolution of the Legislature under which the committee is acting, and the petition of F. B. Gowen on the subject, are given below:

EXECUTIVE DEPARTMENT, }
March 1, 1883. }

To the Senate and House of Representatives:

GENTLEMEN:—It has been publicly asserted by Mr. F. B. Gowen, a reputable and responsible citizen, in the hall of the House of Representatives, that one E. G. Patterson, a person employed by the State in an action to recover certain taxes claimed by the Auditor-General to be due by the Standard Oil Company to the Commonwealth, was paid by the officers of said corporation to suppress the testimony he had collected, and the State thereby was debarred from obtaining its just dues. The charges, as made by Mr. Gowen, are substantially as follows:

"In a suit by the great Commonwealth against the Standard Oil Company for the collection of taxes which it refused to pay he had been employed by the Commonwealth to collect testimony. He admitted, under oath, that the Standard Oil Company paid him \$7,500 to suppress testimony. I am prepared to furnish the testimony, and I make this charge openly and publicly before the Legislature of this Commonwealth."

Though I have had serious doubts as to the propriety of an official recognition of such accusations, I have come to the conclusion, after a careful survey of the subject, that the matter in the present instance is of sufficient gravity to warrant my laying before you the facts I have been able to ascertain. I herewith submit to you the following papers: A paper purporting to be a contract between said Patterson and the State, through the Auditor-General, Secretary of Internal Affairs, and the Attorney-General, by which the said Patterson was employed to procure testimony in the suit against the Standard Oil Com-

pany; also four letters from the then Attorney-General to the said Patterson; a letter from the Auditor-General upon the same subject; and a copy of certain testimony said to have been given by Patterson in a subsequent suit by him against the Tidewater Pipe Line.

It will be seen by these papers that Patterson was employed by the State, and that he subsequently was employed by the Standard Oil Company at a large profit. Without expressing my opinion upon the subject, I deem it my duty to lay before the Legislature the facts I have been able to ascertain by a call upon the Departments. I also suggest that a committee of investigation be appointed by your bodies, with power to send for persons and papers, in order that the truth of the accusations may be determined and that the State may be vindicated in her efforts to compel corporations to be obedient to the law. If injustice has been done either to the Commonwealth or any individual, it is of the first importance that the fact be ascertained and the guilty punished, and the State enabled to obtain her legal and just dues.

I also suggest, while upon this subject, the propriety of the Legislature considering whether it might be well to repeal the law giving to the Auditor-General the authority to employ private attorneys to collect claims due the State at a compensation to be paid to said officers. The law upon this subject was passed April 17, 1861, and is as follows: "That whenever, in the opinion of the Auditor-General or Attorney-General, the interests of the Commonwealth require it, they or either of them shall have the power to employ the services of resident attorneys to assist in the prosecution and trial of causes and the prosecution for which services such reasonable compensation as the circumstances will justify or may have been agreed upon shall be allowed by the Auditor-general."

Such methods as these here authorized are of questionable propriety, and are open to much abuse. In the present case, which calls for this message, Patterson might, if successful, have been paid \$20,000, a sum much greater than the compensation of the Attorney-General, within the line of whose duties such matters are, or of any officer of the Commonwealth. The whole system is one that ought to receive your careful consideration with a view to its repeal, or, if possible, its reformation. It seems to me that the Attorney-General should collect all such claims without other consideration than that now allowed by law. (Signed) ROBERT E. PATTISON.

In compliance with the above message, the Legislature passed the following resolution:

Resolved, that a committee of five members of the House and three members of the Senate be appointed, to whom shall be referred the special message of the Governor, of March 1st, 1883, with the accompanying papers, and that the said committee shall have power to inquire into the legal relation of the Standard Oil Company to the State, into its conduct as to the payment of its taxes to the State under existing laws and into the right and power of the State to require by statute the payment of taxes by said company or any foreign corporation upon its business transacted within the State, and to report specifically upon each branch of the authority hereby given; and for this purpose shall have power to send for persons and papers and do such other acts as may be necessary for the purpose of its appointment, at an expense not to exceed \$2,500, and that said committee may sit during the recess of the Legislature and make report to the Governor.

To the Honorable Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met:

The petition of Franklin B. Gowen, a citizen of Philadelphia, respectfully represents:

That on the 13th day of February last, in an argument made by him at Harrisburg before the Committee of Railroads of the said House of Representatives, he made use of the following language:

"A man named Patterson, living in the oil region, filed a bill in equity against us as a shareholder of the Tidewater Pipe Line. He was a shareholder, but had only recently paid for his shares, and we believe he obtained the money to pay for them from the Standard Oil Company. He was compelled under oath to testify. Of course, if he admitted that the Standard Oil Company had paid this money for his shares for the purpose of instituting a suit against a rival corporation he stated himself out of court.

"But he was compelled to admit this fact, that in a suit by this great Commonwealth against the Standard Oil Company for the collection of taxes which it refused to pay, he had been employed by the Commonwealth to collect testimony. The suit was decided practically in favor of the Standard Oil Company. An application for a new trial or reargument was made, and this man was employed by the State to collect testimony in aid of the Commonwealth. He admitted under oath

that the Standard Oil Company paid him \$7,500 to suppress that testimony, and that with the money he paid for his stock."

That in the said argument he also charged the Pennsylvania Railroad Company, a corporation incorporated under the laws of the said Commonwealth, with unjust and unfair discrimination in the carriage of oil, and with having practically refused to transport oil for the Tidewater Pipe Company, limited, or its affiliated companies, upon the same terms as they were then transporting oil for the Standard Oil Company, or its affiliated companies.

That subsequent to the making of said argument, His Excellency the Governor of the Commonwealth, by a message under date March 1st, called the attention of the General Assembly to the statement made by the petitioner in the said argument, whereupon, as your petitioner is informed and believes, the said message of the Governor was referred to the proper committees of both houses. Your petitioner is also informed and believes that in the Senate a motion was made by the HON. LEWIS EMERY, jr., that a committee should be appointed with power to investigate the transactions of the Standard Oil Company, with reference to all the settlements, suits or other legal proceedings with the Commonwealth, and the relations of the said Standard Oil Company with the railroad companies of the State, and with producers, production, transportation and refining of petroleum, with power to send for persons and papers and report the testimony taken in the investigation, with such recommendations as the said committee shall see fit to make, etc., etc.

Your petitioner is also informed and believes that a resolution has subsequently been introduced into both houses, by which it is proposed to refer the said message of the Governor, of March 1st, 1883, with the accompanying papers, to a committee with power to inquire into the legal relations of the Standard Oil Company to the State, into payment of taxes to the State, into its liability to pay taxes to the State under existing laws, into the rights and power of the State to require by suit the payment of taxes by such company, or any foreign corporation, upon its business transacted within this State, etc., etc. Your petitioner respectfully represents that under a resolution such as that last hereinbefore recited, no notice whatever could be taken of the charges made by your petitioner in his argument aforesaid, namely, that officers of the Standard Oil Company had bribed a person in

the employment of the State to suppress testimony collected for the State, or into charges of unjust and unfair discrimination by the Pennsylvania Railroad Company in favor of the Standard Oil Company and against other shippers competing with the Standard Oil Company.

That your petitioner is informed and believes that the legal relations of the Standard Oil Company with reference to the State, so far as the question of the payment of taxes is concerned, have been finally adjudicated by the Supreme Court of Pennsylvania, and that the investigation into such legal relations which have been the subject of final decisions by the court would be unnecessary and lead to no practical result. Your petitioner, therefore, prays that a committee to be appointed by your honorable bodies may be specifically empowered to inquire into the charges made by your petitioner in his argument aforesaid, both with reference to the payment of money to the said Patterson, and with reference to the payment of money, unjust and unfair discrimination of the Pennsylvania Railroad Company, instead of merely inquiring into legal relations which have already been definitely and finally decided by the highest tribunal of the State, from whose decision there is no appeal.

(Signed) FRANKLIN B. GOWEN.

PHILADELPHIA, May 23d, 1883.

The following is the committee appointed by the Legislature:

Senators John C. Grady, Philadelphia; A. J. Herr, of Dauphin county; John G. Hall, of Elk county.

Representatives John W. Walker, of Erie county; Thomas McReynolds, of Bucks county; Jacob Ziegler, of Butler county; Geo. H. Clark, of Philadelphia, and James L. Graham, of Allegheny county.

The committee has held meetings in Philadelphia and New York, and adjourned at the latter place to meet in Bradford on the 16th of this month.

During the last week of the old year, Ladenburg, Thalman & Co. purchased 10,000 barrels of crude to be shipped by steamer to Fiume, Austria. Iron steam vessels will most likely take preference over the wooden ships. In the above instance the insurance risk was taken one per cent. cheaper than that demanded for wooden vessels.

WE are indebted to A. J. Carr, proprietor of the Bradford *Sunday Mail*, for the cut of the Producers' Exchange. He will accept thanks.

THE GEOLOGIST'S REPLY.

PARKERSBURG, W. VA.,
December 28th, 1883. }

Editor AGE: In an article headed "Macksburg—Past and Present," published in your December number, Mr. Patrick Boyle makes reference to the work done by an "Economic Geologist." Will you kindly grant me the privilege of saying to the readers of the AGE that Mr. Boyle's contempt for geological work in connection with the location of Petroleum deposits prevented him giving the "pretentious professor" due credit.

Mr. Boyle came to Macksburg a few weeks since, brimful of knowledge gathered in the Pennsylvania fields, with a marked inclination to treat with contempt any suggestions offered by the "natives." After a few days sojourn he fills several pages of your valuable magazine with what might be fitly called "post-mortem geology" of the Macksburg field. We find him measuring and calculating "dips" as assiduously as the most "pretentious professor," and arriving at conclusions which lack the charm of novelty and are of little value from an "economic" point of view.

The well which was drilled by the writer, one mile east from Dexter, in 1878, was drilled on the geological inference that a sand rock which had been yielding oil for several years in the White Oak district (W. Va.), at a depth of 850 feet below the bed of Oil Spring Run, would probably be found in its proper horizon about 1,450 feet below the bed of Duck Creek. Careful measurements made upon the Green Crinoidal Limestone gave a difference of 600 feet; the drill verified the measurement and the sand-rock was found within a very few feet of the calculated depth. Its character as an oil-bearing sand was established by an abundance of gas and a trace of oil. Its identity with the White Oak sand was established by the character of the material immediately above and below it. Here the work of the geologist ended and that of the practical operator began. In so far as the accumulation of petroleum in the sand was dependent upon the comparative level of different parts of the rock, the geologist might still be of service to the operator in measuring dips and indicating where there would probably be an accumulation of brine, but the operator need not stand by and expect "geology to fill his tank."

The writer has been consulted by a great many gentlemen from the Pennsylvania oil fields, Mr. Patrick Boyle among the number, and he

has always given them the full benefit of his twenty years experience and observation without asking that they give him anything in return save the courtesy that is due from one gentleman to another.

F. W. MINSHALL.

PIPE LINE RUNS.

The difference between the Bradford and Alleghany runs and those of the entire region make up what is termed the outside runs. Taken for a number of consecutive months these show the production of all sections of the oil regions outside of Bradford and Alleghany. The following table shows the average daily runs for Alleghany, Bradford, and the outside region from the 1st of January:

1883. MONTH.	RUNS. BRADFORD.	RUNS. ALLEGANY.	RUNS. OUTSIDE	TOTAL. DAILY RUNS
January	36,847	14,006	14,172	65,025
February	38,480	13,954	13,573	65,208
March	37,754	12,609	14,031	64,404
April	38,800	13,742	16,655	69,207
May	39,039	13,793	16,613	69,445
June	38,604	13,499	18,330	70,443
July	36,489	12,380	16,758	65,628
August	37,065	12,743	18,969	68,877
September	35,894	12,358	17,958	66,210
October	35,654	12,757	19,238	67,649
November	34,596	12,332	18,433	65,280
December	33,940	11,752	18,428	64,120

SUMMARY of the Tidewater Pipe Line statement for December 1883.

Quantity of crude petroleum in custody at beginning of December	Barrels. 2,281,070.57
Quantity of crude petroleum at close of December	2,475,924.02
Less sediment and surplus	116,297.82
Receipts during December	294,512.83
Deliveries during December	212,570.15
Outstanding certificates, accepted orders, etc	1,907,000.00
Credit balances	452,626.20
Total liabilities December 31, 1883	2,359,626.20

NOVEMBER.

Quantity of crude petroleum in custody at beginning of November	Barrels. 2,285,351.48
Quantity of crude petroleum in custody at close of November	2,402,871.25
Less sediment and surplus	121,800.68
Receipts during November	305,038.10
Deliveries during November	307,730.39
Outstanding certificates, accepted orders, etc	1,799,000.00
Credit Balances	482,070.57
Total liabilities Nov. 30, 1883	2,281,070.57

SUMMARY of United Pipe Line statements for November and December, 1883.

	December. Barrels.	November. Barrels.
Receipts, all sources	1,679,952.46	1,635,745.42
Deliveries	1,518,998.40	1,736,517.39
Gross Stocks, end of month	35,253,282.49	35,245,242.24
Sediment and Surplus	1,966,339.04	2,104,792.81
Net Stocks, end of month	33,286,943.45	33,140,449.43
Outstanding Acceptances	28,603,136.25	28,307,351.75
Credit Balances	4,683,807.20	4,833,097.68

ACCORDING to "Arch," the Oil City correspondent of the Pittsburgh *Dispatch*, the first attempt to transport oil by pipe line was made by Hutchins & Foster, who constructed a two inch line from Plumer to Tarr farm in the summer of 1863. It was two miles long and owing to imperfect pumps was not very successful.

PETROLEUM EXPORTS.

THE exports of refined, crude and naphtha, from all United States ports from Jan. 1 to Dec. 31, for the years 1880, 1881, 1882 and 1883, were as follows:

PORTS.	1883.	1882.	1881.	1880.
New York . galls.	420,958,900	387,332,070	367,890,039	264,067,119
Boston	4,779,407	7,284,244	10,798,556	5,058,665
Philadelphia	79,775,815	85,568,134	110,240,610	54,673,946
Baltimore	11,103,599	11,842,410	18,165,817	15,131,979
Richmond	173,499	382,239	215,484	1,302,064
Total exports from United States	516,782,170	492,409,097	507,310,506	340,233,773

The appended table from *The Shipping List*, gives the total exports of refined, crude, naphtha and residuum from New York to foreign countries from Jan. 1st, to Dec. 31, for the years 1881, 1882 and 1883.

REFINED.

	1883.	1882.	1881.
GREAT BRITAIN.—London	36,056,955	26,156,756	24,299,664
Liverpool	11,566,634	9,967,113	11,707,668
Bristol	3,855,673	3,961,584	4,270,378
Ireland	5,791,493	5,010,725	9,538,903
Other ports	6,976,948	6,452,053	8,013,306
GERMANY.—Bremen	47,053,007	49,177,906	41,350,488
Hamburg	32,275,401	34,105,649	17,724,648
Konigsburg and Stettin	4,766,126	10,548,384	7,413,504
Dantzig	1,110,141	2,120,057	2,584,964
Other Ports	835,570	1,282,805	968,614
FRANCE.—Marseilles	331,945	188,730	188,730
Havre	7,333,437	6,789,961	7,746,457
Norway and Sweden	1,539,156	1,609,272	2,255,402
Russia	8,718,855	7,254,729	6,614,113
Denmark	37,123,499	20,051,267	30,963,398
Belgium	14,509,702	13,091,877	10,994,612
Holland	282,480	198,733	10,248
Spain	2,009,420	1,594,388	1,930,550
Portugal	2,679,078	1,314,621	4,501,395
Gibraltar and Malta	2,771,556	1,961,912	3,325,772
Italy	15,505,052	12,566,256	17,258,957
AUSTRIA.—Trieste, etc	1,280,410	379,300	2,675,110
Greece	4,165,261	3,876,839	7,136,594
Turkey in Europe	3,080,742	1,231,580	3,455,840
Turkey in Asia	16,838,690	20,504,060	12,441,980
India	25,188,470	31,637,450	17,985,910
China, Japan, etc	31,403,150	25,198,225	24,973,745
East Indies	2,964,550	1,846,380	3,783,270
AFRICA.—Alexandria, etc. E	153,849	119,370	214,822
Canary Islands	4,858,329	3,809,948	4,012,669
Other Ports	2,284,946	2,622,795	2,196,795
Australia	660,180	749,638	767,196
New Zealand	242,500	109,565	78,150
Sandwich Islands	5,997,804	5,266,665	5,895,851
SOUTH AMERICA.—Brazil	3,820,423	2,989,679	2,701,592
Argentine Con- federation	1,416,050	1,588,710	758,740
Chili and Peru	340,654	195,061	152,450
U. S. Columbia	667,254	517,574	454,005
Venezuela	119,461	136,490	64,090
Other Ports	244,340	184,944	200,524
Central America	1,334,968	1,288,795	1,009,933
Mexico	1,211,126	664,580	312,199
British North American Colonies	302,396	755,834	505,672
Cuba	1,630,328	1,492,385	1,522,953
British West Indies and Br. Guiana	927,014	1,240,628	1,190,334
Other West Indies			
Total Galls.	353,893,678	330,743,218	307,963,525

CRUDE.

	1883.	1882.	1881.
FRANCE.—Havre	10,541,315	8,343,867	9,338,145
Marseilles	3,690,400	1,942,554	3,101,735
Bordeaux	2,451,408	1,929,769	1,654,888
Dunkirk	7,863,408	4,384,725	5,725,189
Other Ports	8,922,915	7,937,875	5,014,128
Antwerp	753,616	1,100,621	2,478,364
Bremen	62,374	148,235	115,187
Norway and Sweden	12,411,383	12,814,730	14,474,224
Spain	2,171,437	3,203,576	1,795,098
Cuba	2,347,315		
Other Ports			
Total Galls.	51,215,571	41,805,952	43,697,958

NAPHTHA.

	1883.	1882.	1881.
Great Britain	5,985,201	6,905,233	7,040,656
France	6,432,361	4,967,089	6,343,997
Germany	1,668,038	1,235,525	990,711
Other Europe	1,665,163	1,490,740	1,726,609
Various Ports	98,888	184,313	126,583
Total Galls.	15,849,651	14,782,900	16,228,556

RESIDUUM.

	1883.	1882.	1881.
To all Ports	6,494,597	4,483,109	3,846,575
Total Refined since January 1, actual shipments			353,893,678
do do do do crude equivalent			471,858,237
do Crude do do actual shipments			51,215,571

Grand Total Crude and Crude equivalent galls. 523,073,808
Same time, 1882 482,796,909

Total Crude, Refined and Naptha, 1883	420,958,900
Total Crude, Refined and Naptha, 1882	387,332,070
Total Crude, Refined and Naptha, 1881	367,890,039
Total Crude, Refined and Naptha, 1880	264,067,119
Total Crude, Refined and Naptha, 1879	293,992,095
Total Crude, Refined and Naptha, 1878	214,723,657
Total Crude, Refined and Naptha, 1877	247,965,845

STOCKS, SHIPMENTS AND RUNS.

RUNS OR RECEIPTS.

PIPE LINE.	DEC. 1883.	NOV. 1883.
United	1,679,952.46	1,635,745.42
Tidewater	294,512.83	305,038.10
Octave Pipe Co	3,247.40	3,329.69
Charley Run		
Shaffer Run		
Franklin (limited)	4,929.02	5,701.51
Cranberry Pipe Line	5,091.81	8,623.22
Total	1,987,733.52	1,958,437.94
Daily average	64,120.43	65,281.26

DELIVERIES OR SHIPMENTS.

PIPE LINE.	DEC. 1883.	NOV. 1883.
United	1,518,998.40	1,736,517.39
Tidewater	212,570.15	307,730.39
Octave Oil Co	2,944.12	3,397.95
Charley Run		
Shaffer Run		
Franklin (limited)	10,194.43	10,428.30
Cranberry Pipe Line	4,747.57	6,908.61
Total	1,749,454.67	2,064,892.64
Daily average shipments	56,434.02	68,829.75

Daily excess of runs over shipments, December	7,686.41
Daily excess of shipments over runs, November	3,548.49
Daily excess of shipments over runs, October	3,972.41
Daily excess of shipments over runs, September	11,372.77
Daily excess of runs over shipments Aug.	1,571.67
Daily excess of runs over shipments, July	12,995.31
Daily excess of runs over shipments, June	12,183.86

STOCKS.

PIPE LINE.	DEC. 31, 1883.	NOV. 30, 1883.
United	33,286,943.45	33,140,449.43
Tidewater	2,359,626.20	2,281,070.57
Octave Oil Co	5,888.88	5,689.08
Charley Run	3,986.81	3,986.81
Shaffer Run	28,052.75	28,052.75
Franklin (limited)	25,501.37	30,766.78
Cranberry Pipe Line	5,565.28	5,221.04
Total	35,715,564.74	35,495,236.46

Stocks increased, December	220,328.28
Stocks Decreased November	121,800.43
Stocks Decreased October	135,681.61
Stocks Decreased September	350,167.79
Stocks Decreased August	269,053.22
Stocks Increased July	386,004.51

	RUNS OR RECEIPTS.	SHIPMENTS OR DELIVERIES.
Daily Average December	64,120	56,434
Daily Average, November	65,281	68,829
Daily Average, October	67,649	71,621
Daily Average September	66,210	77,582
Daily Average August	68,877	67,306
Daily Average July	65,628	52,722
Daily Average June	70,443	58,259
Daily Average May	69,445	61,411
Daily Average April	69,207	63,612
Daily Average March	64,404	52,737
Daily Average February	65,208	44,352
Daily Average January	65,125	43,813

At the twenty-second annual meeting of the Columbia Oil Company, held in Pittsburgh on the 10th inst., the following officers were elected: President, George D. McGrew; Directors, August Hartje, A. Pitcairn, David Aiken, Jr., W. O'H. Scully, D. A. Stewart, W. A. Robinson. The company's production for 1883 was 113,740 barrels, and the average price received was \$1.08 1/4.

THE PETROLEUM MARKET.

The price of pipe line certificates during the month of December ranged between 112³/₈ and 117³/₈ cents, an extreme fluctuation of only five cents as compared with eleven and one-eighth cents for November. The month opened with 116¹/₂ offered for oil, and closed at 113¹/₈, three and three-eighths cents below the opening figures of December, but three and a half cents in advance of the price at the beginning of November. The highest point was reached on the 8th of December and the lowest on the 19th.

Dullness has been the prevailing characteristic of the business. The outside trader, who represents the occasional speculator and the factor that steps in, only when a combination of circumstances seems favorable for a decided movement, either one way or the other, has given petroleum a severe letting alone. As a result, the market has been practically controlled within a very small range by the manipulations of cliques of brokers who have contented themselves with quick returns and small profits. The holiday season also had considerable effect in producing the general stagnation in the petroleum business and exercised a depressing effect upon crude values. The carrying rates from day to day are always an important item, and when several holidays come in quick succession there is a general disposition apparent on the part of small holders to drop their certificates. Then again, the closing days of the year are usually devoted to settling up accounts and balancing books preparatory to a fresh start for the year ensuing. Christmas and New Year festivities united in attracting many prominent operators temporarily from the floor, and the closing days of the old year were marked by listlessness and inactivity in all of the exchanges. The severe weather has exercised a marked influence on the runs from the wells, and the situation appears very favorable to the believer in an advancing market. It temporarily checks the output of the old wells, and will likewise have an effect in delaying fresh operations. With no prospective oil fields on the petroleum horizon, the outlook for a higher range of prices has never appeared brighter nor more positive.

THE CLEARANCES.

	November. Barrels.	December. Barrels.
Bradford, Oil Exchange	198,598,000	137,962,000
Bradford, Prod. Pet.	62,446,000	54,246,000
Oil City	251,848,000	183,216,000
New York, N. Y. Pet	229,968,000	198,964,000
New York, National	166,248,000	170,356,000
Pittsburgh	151,278,000	144,678,000
Total	1,060,386,000	894,422,000

THE REFINED MARKET.

Early in December refined was advanced one quarter of a cent per gallon, and the price was firmly maintained throughout the month. The export demand was light, but the tone of the foreign markets continued strong. The business for the month ruled rather dull and seemed hardly to warrant the advanced scale of prices, but refiners showed no disposition to make any concessions. Refined in cases has been held at 11@11¹/₄ cents, with small trading. Most of the business transacted represented contracts that were made earlier in the season.

High test oils in jobbing lots have shown but little variation in price. Standard White, 110° fire test, has ruled at 9¹/₂@9³/₄c; 120° at 9³/₄@10c; 130° at 10c, and 300° at 17@20c per gallon. Water White, 150 test, remains at 11¹/₂c, with little inquiry.

The price of naphtha has been advanced to 6¹/₄ cents per gallon. Foreign demand has been small. The domestic market has been the principal feature in naphtha, as well as in crude and residuum, and has fully sustained the figures.

Advices from London under date of December 20th, state that "the demand for water white oil continues unprecedented, and that buyers have been making large profits on their purchases of the higher test oils. The feeling begins to prevail that the advance is not a mere spurt to enable manufacturers to sell, but evidences the fact that refiners purpose to get higher and more remunerative prices in the future. We are still 1d under import price and also under continental values, the stocks here and on the continent slowly declining. A few sales for the last four months of 1884 have been made at 7³/₄@8d."

	New York . Cts.	Philadel- phia. Cts.	Baltimore . Cts.	Liverpool . Pence.	Bremen . . . Marks.	Antwerp . . Francs
S 1	9	8 ⁷ / ₈	8 ⁷ / ₈	7	8 30	21 ¹ / ₂
M 3	9	8 ⁷ / ₈	8 ⁷ / ₈	6 ⁷ / ₈	8 30	21 ¹ / ₄
T 4	9	8 ⁷ / ₈	8 ⁷ / ₈	6 ⁷ / ₈	8 30	21 ¹ / ₄
W 5	9	8 ⁷ / ₈	8 ⁷ / ₈	6 ⁷ / ₈	8 30	21 ¹ / ₄
T 6	9	8 ⁷ / ₈	8 ⁷ / ₈	6 ⁷ / ₈	8 25	21 ¹ / ₄
F 7	9	8 ⁷ / ₈	8 ⁷ / ₈	6 ⁷ / ₈	8 25	21 ¹ / ₄
S 8	9 ¹ / ₈	9	9	6 ⁷ / ₈	8 25	21 ¹ / ₄
M 10	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	6 ⁷ / ₈	8 50	21 ³ / ₄
T 11	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 55	22
W 12	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 55	22
T 13	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 55	22
F 14	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 60	22
S 15	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 60	22
M 17	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 55	21 ³ / ₄
T 18	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 55	21 ³ / ₄
W 19	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 55	21 ³ / ₄
T 20	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 55	21 ³ / ₄
F 21	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 55	21 ³ / ₄
S 22	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 55	21 ³ / ₄
M 24	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 55	21 ³ / ₄
T 25	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 70	22
W 26	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 70	22
T 27	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 70	22
F 28	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 70	22
S 29	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 65	22
M 31	9 ¹ / ₄	9 ¹ / ₈	9 ¹ / ₈	7 ¹ / ₄	8 65	22

THE PETROLEUM AGE.

DEVOTED TO THE

Interests of the Petroleum Trade.

PUBLISHED MONTHLY BY

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SPECIAL NOTICE.

The publishers of this Magazine would respectfully announce that many subscriptions are now due, and that a speedy settlement is earnestly desired. The AGE will continue to be sent to all who subscribed under the old management. Those who have received specimen copies are invited to subscribe. The Bradford office of the AGE is Room No. 3, Roberts Building, above Dow's Bank.

THE PRODUCING REGION.

ALLEGANY FIELD.

The Allegany field at the close of the year 1883 shows a marked decrease in new operations. A careful canvass indicated that there were thirty-eight less rigs up and building and wells drilling January 1st than on the 1st day of the previous month. There was a dearth of water and a want of fuel in some sections which retarded the drill and caused a rather small number of wells to be added to the finished list. If the drill had been allowed free play the number of drilling wells would have been still smaller, and the monthly report from this section would have had a stronger bullish coloring. An ill-fated star guided the wildcatter in his explorations, the list numbering six test wells which came in dry. They were widely scattered from Hinsdale on the north, a long ways east of the old development, and as far as Oswayo on the south. The Edwards well, in Steuben county, due east of lot 79 in the town of Independence, was the seventh test well which Bradford and Buffalo capitalists have sunk in looking for a red sand field north and east of the Allegany field. This well was drilled to a depth of nine hundred feet, a level below where the sand should have been found. Hatch & Co.'s test on lot 155, Willing, serves as a dusty guide to crude adventurers in that section. The Oswayo well, south of the field and across the Potter county line, struck a sand rock at 1,340 feet, which had a thickness of forty feet.

Mr. T. W. Larsen, the well known real estate dealer who keeps thoroughly posted on the Alle-

gany field, writes that the Heuston & Brecht well averaged 38 barrels the first six days after it was torpedoed and that the well was producing 22 barrels on the last day of December.

The territory lying between the well on lot 106, Alma, and the eastern end of the Allegany field is no better understood than it was thirty days ago. It may afford some pools and prolific streaks, but at present it has the appearance of a crude transparency. It will not furnish quick returns and can only be operated by producers who can afford to wait for the thin sand rock to give up its light store of oil. At the close of the year there were over 3,300 producing wells in the district. Of this number 1,200 were completed during the year 1883. At this writing the figures on the December production for Allegany have not been compiled, but the indications are that the production of the field was not sustained by the yield of the 1,200 new wells. Excepting the country east of the old section, but few ramifications remain to be traced out and the field is not likely to clog the wheels which are moving for better prices.

WARREN AND FOREST.

At the close of the year operations were fairly active in the Glade, Clarendon and Tiona fields, the count showing an increase over the figures of the previous month. The Glade district is the only one of the group named which presents features which excite comment. The Reed No. 4, just 400 feet northwest of No. 3, was drilled into the sand the last days of December. It proved smaller than No. 3 and indicates that the Wardwell streak does not widen to the westward. The well is near the northern limit or the belt passes east of the well. A larger amount of gas and a smaller allowance of oil was found at the well than No. 3 afforded. A few days after being torpedoed the well was producing thirty barrels daily. Reed has rigs up for two wells west of Nos. 3 and 4. The Kern & Magee well at the southwestern end of the district came in dry. The Anchor Oil Co.'s last well in the Wardwell section was larger than the reports sent out made it. The Wardwell development still partakes of the nature of an experiment, and must continue in that condition until the drill has more play.

The well of Campbell, Chapin & Co., on lot 449, in Pleasant township, south of Irvineton, was completed during the second week of January and came in dry. It is found on a 45° range northeast of the pools about Tidioute and Triumph and was located with the view of find-

ing a deposit of a similar character to the northeast. Munhall & Smithman and Vandergrift & Co. are drilling northeast of Russellsburg in Warren county. Northeast of the Sheffield gas well on lot 152 in McKean county George Dimick is drilling a test well.

COOPER.

The interest in the Cooper district until toward the close of the year 1883 was centered in the southwestern end of the field on what is known as Cooper Hill. As the test wells have been drilled in this section of the field it presents but little worthy of note outside of the condition of the old wells. The striking of oil in the regular Cooper sand at H. B. Porter's No. 4 well, thirty one rods northwest of his gas well at Henry's Mills brought a section which had become famous for its irregularities and treacherous territory into prominence. For a long time the trade has voted that the crude currents were not coursing below the rugged defile at Henry's Mills through which the Tionesta finds its winding way. The Porter strike, which produced at a hundred barrel rate when shot, and the well of McKinney & Co, on the northwestern corner of the Williamson tract, show that the Sheffield and Cooper districts are to be connected by a streak of prolific territory of at least the regulation width. The McKinney well is 600 feet from the west line of their lot and about 150 feet from the northern boundary line. At this well the drill passed through the slate which caps the Cooper sand about 1 o'clock Tuesday morning, Jan. 8th. When the sand was penetrated a short distance the well began to flow, the oil and gas coming suddenly. What the well did the first two days is not known, but on the 10th and 11th it was flowing steadily and doing twenty barrels per hour. These figures are based on gauges taken by a representative of the AGE, who was on the ground. The well has a capacity far beyond what was expected of it and its staying qualities indicate a probability of improvement when the drill goes deeper into the sand. The heavy vein of gas found in the second sand helps the well to do its work steadily. H. B. Porter will drill six more wells on the northern part of his lot. McKinney & Co. have room for at least three and perhaps four more good wells. Shank & Emery, who are operating on 438, and the McCalmont Oil Co., who have lately purchased lot 439 and who own the first lot of the Henry lands west of Porter's lot, will hasten the work of rig building and drilling on this intervening space between the

two developments. In the ninety days to come there will be a struggle with the elements by the companies who are operating along rival lines, and this nook of the woods will be the liveliest place in the oil regions. After thirty days the production of the Cooper field is likely to be sustained by the new wells which will be finished about Henry's Mills. At this point the western edge of the development remains to be determined. Perhaps it will have the width found at and northeast of the Reno well.

On the afternoon of January 11th there was one 250 barrel tank and one 600 tank in position at the McKinney well and a 1,200 which was to be completed by noon on the following day. At 3 o'clock in the afternoon the well was flowing nineteen barrels per hour.

On the 27th of December the 146 wells of the Cooper district were producing 3,084 barrels, and for the twenty-four hours ending January 8th the field had a yield of 2,782 barrels. After the first day of January no torpedoes had been used up to the eighth.

BALLTOWN.

One of the whimsical and at the same time interesting features that characterize the oil trade is the superstition which is entertained concerning imaginary barriers to the extension of an oil field. During the palmy days of the Clarion county development it was widely believed that oil in paying quantities would not be found across the public highway known as the "Pike." So many dry holes had been discovered along this road that it came to be regarded as a dusty girdle cutting off the productive field from the unexplored beyond. But in time the drill set at naught all theorizing and a streak of territory was traced several miles in advance of the mythical limit. So it has been with the winding Tionesta. It has been frequently remarked that oil would not be found in paying quantities on the south side of the Tionesta. In December this illusion was dispelled by that instrumentality whose decisions admit of no appeal. On the 20th of December sand was struck at May, Kelly & Grandin's No. 18, on warrant 5,236, on the south side of the creek. The well is located 50 rods ahead and on a 45° line with No. 17. It is 24 rods in advance of No. 14 and extends the Balltown belt this distance. The sand was reached at a depth of 1,200 feet. On the third bit the well began to flow at the rate of forty barrels per hour and produced between 500 and 600 barrels the first twenty-four hours. The top of the sand was of

inferior quality, but that found ten feet below was loose and of prime quality. On what is regarded as the axis of the Balltown belt the company have No. 19 drilling 50 rods ahead of No. 18. The drive pipe had struck rock and the drill was vibrating on the 7th of the month. No. 20 is 45 rods from No. 19 and at right angles to the belt line. It is located to test the width of the streak at this point. No. 21 is on a 48° line drawn between the 45° and the 52° lines, and 50 rods to the fore of 19. May, Kelly & Grandin will now hasten the drill until the south-western end of the Balltown belt is outlined. The streak now has a length of four miles and is as long as it ought to be for its demonstrated width. The oil business stretching over a space of twenty years, seems not to afford precedents for judging these white sand streaks or pools. Thus far the total amount of oil which the Balltown field has produced would only illuminate the world for ten days. Balltown will continue to furnish fuel for the fires of speculation which are burning in the exchanges, but its effect on values would be materially weakened if white sand pools were understood by the trade. From January 2d until the eighth no torpedoes were used and the rigor of the weather interfered with agitation of the wells. When left to themselves it was demonstrated that they decline. A gauge taken by the field man of the AGE showed that the wells for twenty-four hours ending January 7th, produced 3232 barrels. On that date May, Kelly & Grandin's No. 18 was producing 200 barrels. At the north-eastern end of the field Gartlan is drilling a well near the old Gartlan well, or Porcupine Oil Co.'s No. 4. It was down 1000 feet on the 7th. Murphy is drilling a well on the south-eastern corner of lot 731. It is a short distance north-west of the Markham gas well. At this well only gas can reasonably be expected. May, Kelly & Grandin's No. 17 was shot during the second week in January and started at 600 barrels. The Balltown Oil Co.'s No. 17 on lot 4821 has been shut down on top of the sand since early in January. This well is located north-east of No. 11 and south-east of No. 15. They are drilling No. 18 and have a rig up for 16. The Porcupine Oil Co.'s No. 17, one location south of No. 13, and one of the second tier of wells from the west line of their lot started at 30 barrels per hour. They are drilling No. 16 and have a rig up for No. 18. No. 16 is located 200 feet due east of a point 1000 feet north-east of No. 13 on the belt line. No. 18 is 200 feet

due west of a point which is 1700 feet north-east of No. 13 on the belt line.

THE BRADFORD FIELD.

At the close of the month of December the Bradford field showed a slight increase in new operations. There were 80 new rigs, 12 old ones and 96 wells drilling, making a total of 188 against 172 for December 1st. The Allen & Morse well, on the Widow Winchell farm, near Windfall station, on the K. & E. R. R., was completed during December. Sand was struck at a depth of 1157 feet. There were two layers of sand, the upper having a thickness of 12 feet and the lower 14 feet with 21 feet of slate between them. The well stimulated by an eighty quart shot was producing ten barrels on the first of the month. The well is south-east of the defined field and will cause some drilling in its immediate vicinity. The P. C., L & P. Co. found a dry hole on the Terry farm in the Tuna Valley. The greatest activity prevails in the section north of State Line, between the Four Mile and Tuna Valley. A streak of second sand oil is being developed, extending from lot 31 on the C. B. & H. tract to lot 41 on Harrisburg Run. Vandergrift & Miller found oil in the second sand on lot 31 of the C. B. & H. tract in March, 1882. At the present writing, January 17th, the Enterprise Transit Co. have just drilled a well through 46 feet of second sand, with a good showing of oil. It is located south-east of the central point of lot 1. The lowest estimate placed on its production from the second sand is ten barrels. The second sand streak, as now outlined, has a length of more than a mile, running in a north-westerly direction. While the field remains snow-bound a smaller number of old wells will be shot and it will be strange if the production does not decline.

COMPLAINTS have been made to one of the members of the Canadian Parliament, of the heavy smuggling that is carried on, along the border between the United States and Canada. It is stated that American kerosene is sold at Prescott and Brookville, at 16 cents per gallon. At this price, a can containing from five to ten gallons is left at the customers door. After the oil is removed the value of its contents is placed in the can, and the consumers are not supposed to know the mysterious dealers who supply them.

THIS number completes volume 2 of the AGE, parties desiring back numbers can be supplied.

DECEMBER OPERATIONS.

THE ENTIRE REGION,—WELLS COMPLETED, WELLS DRILLING, AND RIGS UP AND BUILDING.

WELLS COMPLETED IN DECEMBER, 1883.

Allegheny Field.

Scio.

Lot.	Owner.	Barrels.
1,	Manhattan Oil Co No 4	5
1,	Manhattan Oil Co No 5	6
1,	Lee & Apple No 10	8
2,	Straight & Hostetter No 18	10
2,	do do No 19	10
2,	Coast Oil Co No 21	12
2,	Wheeler & Snyder	8
2,	Faunce & Snyder No 8	12
4,	Minnow Oil Co	7
11,	Greenlee & Anderson No 5	12
11,	R Carrol No 3	12
12,	Fenton & McConnell No 1	5
Wells		12
Production		107

Alma.

1,	Phillips Bros No 9	8
4,	McEnroe Bros	10
4,	Fertig Bros est	5
4,	Matson & Thompson No 7	10
17,	Col Scott No 4	10
17,	Carlin, Bussell & Co No 5	10
17,	New Milford Oil Co No 3	8
17,	Manning & Co No 3	12
18,	Manhattan Oil Co No 9	8
18,	do do No 10	8
20,	Willets & Lovell No 15	10
20,	Straight & Hostetter No 7	10
21,	Riter & Conley	6
21,	M Finnigan & Co No 5	10
21,	do do No 8	10
21,	do do No 9	10
21,	Cochran Bros No 2	10
21,	do No 12	6
24,	Vance & Horton No 7	15
24,	Sutherland, No 3	6
38,	Carter, Moore & Co est	8
38,	E T Anderson & Gable No 7	15
38,	do do No 8	5
38,	Koch Bros No 2	15
38,	do No 2	15
38,	Weiser Bros & Walley No 3	6
38,	do do No 20	10
39,	Duke & Norton Oil Co No 43	10
39,	do do No 44	12
39,	William Chambers	10
80,	Charles Rathburne est	2
103,	Alma Oil Co est	2
120,	Finnigan & McBride est	10
124,	Manhattan Oil Co	dry
139,	Duke & Harris est	5
142,	Bolivar Oil Co	8
142,	H Stewart	10
Wells		36
Production		325
Dry		1

Wirt.

17,	Riley Allen No 1	12
41,	Gardner & Co est	8
41,	Wellman, Miner & Pitts No 30 est	15
41,	Wellman, Miner & Fuller No 15 est	10
57,	E B Barton est	10
57,	A J Thompson est	10
Wells		6
Production		65

Bolivar.

6,	J Collins No 2	12
7,	McDowell & Stitt No 3	10
7,	J D Downing No 5	10
7,	W & J Duke No 13	20
7,	Coast & Sons No 10	5
7,	do do No 11	8
7,	do do No 15	10
7,	do do No 16	10
7,	A A Hopkins No 15	8
8,	Jordan Oil Co No 1	8
15,	Wellman, Miner & Co No 3	6
15,	do do do No 4	8
15,	A L Robertson & Boggs No 6	8
15,	Moran & Co	6
16,	Empire Gas Co No 2	5
23,	do do No 2	8
24,	do do No 7	8
24,	C B Williams & Co	7
24,	Riley Allen No 2	12
23,	Johnson & Conroy No 4	12
23,	do do No 6	10
31,	Fisher Oil Co (Crandall) No 2	5
31,	D E Fritts No 9	5

45,	Crocker & Ryan No 5	10
63,	Columbia Oil Co	5
	California Hollow. W & J Duke	5

Wells	26
Production	221

Clarksville.

9,	P T & W C Kennedy	9
10,	do do	10
17,	John W Davis	14
20,	Love & Pentzer est	5

Wells	4
Production	38

Genesee.

7,	S H Merriman No 25	10
7,	do No 10	10
8,	I Willets No 49	15
14,	Strickler & Co	8
14,	Durkee & Co No 4	8
14,	Davis & Perrin No 3	6
14,	do do No 4	8
14,	J B Bradley No 6	8
15,	McCalmont Oil Co No 28	12
15,	do do No 29	10
15,	do do No 49	20
15,	do do No 50	20
22,	I Willets No 6	6
22,	do No 7	6
23,	Coss Oil Co	10
23,	Emery Oil Co No 8	10
23,	do do No 9	10
30,	McCalmont Oil Co No 24	10
31,	H L McMullan est	10

Wells	19
Production	197

Miscellaneous.

Potter County, Oswayo, Vaughn & Co	dry
Willig, lot 155, Hatch & Co	dry
Tioga county, Carrol & Gregory	dry
Hinsdale, Hydrick & Co	dry
Steuben county, Edwards & Co	dry
Belvidere, Charles Dow	dry

Wells	6
Production	—
Dry	6

Bradford Field.

East and West Branches.

Farm.	Operator.	Production.
Bingham, Forest Oil Co No 12		10
Fox, Joseph Stettheimer No 3		10
do P W Roth, No 4		6
Dent, P C L & P Co, No 53		10
do do No 54		10
Stinson, Asher Brown No 7 est		6
King, Murphy & Co		5
Mack, Fisher Bros		5
do Butts & Co		dry
Wilson, West Branch Oil Co		5
Whitaker, Sherman		8
Mullen Purchase, Caldwell, Hamsher & Co No 5		15
Mullen Purchase, Caldwell, Hamsher & Co No 6		20
Ferry, P C L & P Co No 9		dry
McKeown, Bayne, Fuller & Melvin No 1		10
Lewis Run, Whitney & Wheeler No 6		gas
Hawkins, P C L & P Co & P T Kennedy No 22		10
Craft, Roy & Archer No 8		8
Nile, Bradford Oil Co		7
Reed, do do		10
Rutherford, H Janes No 4		10
Scott, Van Wormer & Mercer		8
Watkins, Wade & Co est		6
Foster, Dale & Co		8

Quintuple.

175,	Atwater & Co	10
195,	Sterrett & Boggs	10
207,	Bradley	10
211,	Joseph Boggs	10

Wells	28
Production	228
Dry	3

Kendall Creek.

Moore, Turner No 6	10
Sill, McCray Bros No 4	8
Duke, Suhr & Shopperle No 1	8
I Straight, Walker & Co est	8
Duke, Charles Duke est	8
Borden, Urquhart & Laveus No 5	10
Thompson, Brees Bros	6
Melvin, P C L & P Co No 78	10
Chamberlain, Portage Oil Co	10
Rixford, Mullen Bros	8

Wells	10
Production	86

Foster Brook.

E T Co, Boyne, Penny & Coleman No 1	10
do H L Blackmarr & Jones No 10	9
do F L Blackmarr & Post No 11	9
do A E Jones	dry
Willets, Willets & Young No 23	10
do I Willets No 26	12
Angell Oil Co, Jos Smith	10
C B & H, Lot 31, Vandegrift & Miller No 4	10
do do Watson Oil Co No 25	8
do do Frank Smith No 2	10

Wells	10
Production	88
Dry	1

Four Mile.

Van Campen, W M Brown	10
do do	10
do Geo Van Campen & Son	15
do Nelson & Jones	10
do William Doe	15
do Perrin & Co	8
Zaph, Franchot Bros	8
do do	8
Waters, Moore & Coast No 5	4
Two Mile, Waco Oil Co	dry
Widow Carrol, C J Hickey	10
Stewart, Johnson	8
Stevens, William Stevens	8
Waters, Griffin, Baum & Howard	8

Wells	14
Production	122
Dry	1

Indian Creek.

Henry Loup, Levens	8
Pine lot, R G Bailey No 8	12
Shattuck, Emery Oil Co No 7	5
Meek's Creek, J L McKinney & Co No 33	10
Loup, Hazelwood Oil Co No 42	6
Barse, U O Co, Forman agent	10
Hamlin, Curtis & Davis	8
Winchell, Morse & Allen	10
Zimmer, Keystone Gas Co	6
Elling, Forest Oil Co No 3	8
J H Campbell, A J Thompson & Forest Oil Co	10
Keys, D J Keys	8
Dodge, Shear Bros No 4	8
B O Co, Sparger No 7	8
Hill, Bovee & Duck No 11	10
Brown purchase, Brown	10

Wells	16
Production	137

Cole Creek.

Bingham, Forest Oil Co No 27	15
do McKean Oil Co No 44	10
do lot 414, Johnson & Co. No 84	10
do do do No 85	12
do lot 494, Union Oil Co No 10	20
do do do No 24	25
do lot 572, do No 22	10
do lot 587, John McKeown	30

Wells	8
Production	132

Kinzua.

3077, Union Oil Co No 48	20
La Fayette, George Gillmor	5

Kinzua Village.

Falconer, Book & Gartlan No 2	3
Campbell, Bradford Oil Co	2

Wells	4
Production	30

Warren and Forest.

Glade and other Towns.

Tract.	Owner.	Production.
Wardwell Reserve, Rhodes & Co No 5		20
do do Rockland Oil Co No 3		3
Wardwell, Robinson & Benedict No 3		20
do Kern & Smith		dry
Western, Anchor Oil Co No 2		8
Western, Anchor Oil Co No 3		20
Asylum Property, Jamieson		3
Lacy, Brown Boys		dry
Warren, Truby		dry
Lore, J C Welles		dry
Allen, John McWilliams		5
Beatty, D Beatty		5

Wells	12
Production	84
Dry	4

Clarendon.

Lot.	Operator.	Production.
55,	Beatty No 29	8
57,	Adams & Story, No 6	7
79,	Adams & Story est	8
105,	Shugert & Co No 5	10
464,	J Smith & Son No 8	30
465,	Benedict No 10	10
527,	Tannery Oil Co No 1	8
527,	S C Rhodes No 5	8
530,	Whitehill No 4	11
530,	H B Porter	5
555,	O'Donnell & Nickle No 1	12
556,	C A & D Cornen No 5	6
556,	C A & D Cornen No 5	5
563,	Clark & Foster	dry
	Stonehill, Smith, Conklin & Co	8
589,	J H Markham	17
Wells		16
Production		153
Dry		1

Tiona.

102,	Clark & Foster	dry
110,	Fertig & Henne No 2	7
110,	Fertig & Henne No 3	8
160,	Hill & Conley No 3	8
160,	Patterson No 7	8
160,	Patterson No 8	7
165,	Page & Co No 10	10
166,	Fertig & Henne No 15	9
200,	W W Ballard No 8	7
	Ludlow, Curtis	gas
Wells		9
Production		57
Dry		2

Cooper District.

Henry lands, Syndicate No 12	75
do do do do No 15	130
do do do do No 17	80
Cooper Hill, M W S & Co No 28	40
Henry lands, H B Porter	No 4
J M Clapp pur, J M Clapp No 2	25
369, Clapp & Co No 2	15
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Wells	7
Production	395

Balltown.

5236, May, Kelly & Grandin No 18	275
3194, Porcupine Oil Co No 15, est	150
4821, Dutch Oil Co No 4 est	15
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Wells	3
Production	440

Lower Country.

Venango.

Farm.	Operator.	Production.
24,	Hughes, Shaffer, Duffield & Co	6
	Gormley, Richardson & Co	4
	Bearey, Richardson & Co	10
	Barber, Judd & Lewis Bros	dry
	Miller, Wolf & Kugler	dry
	Miller, Fisher Bros	dry
	Echols, Judd & Lewis Bros	4
	Redfield, Johnston Bros	dry
	Fish, Warner & Co	12
	Snyder, McElpatrick	6
	McCalmont, McCalmont & Co	5

Emlenton.

Weller, R W Porterfield	8
Haggerty, E Goodrich	5
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Wells	13
Production	60
Dry	4

Clarion.

Casper, P Casper	2
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Butler and Armstrong.

Downey, German Oil Co	6
Reep, Centennial Oil Co	10
Brady Tract, Hunter & Cummings	8
Unknown, Bowers & Bethune	5
Wallace, A Shidemanle	25
Renfrew, Forest Oil Co	35
Huselson, Baldrige Oil Co	6
Weber, P Schmick	5
Renfrew, Phillips Bros	8
McCalmont, Phillips Bros	35
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Wells	10
Production	143

DRILLING WELLS, RIGS UP AND BUILDING JAN. 1.

Allegheny Field.

Scio.

Lot.	Owner.	Depth.
1,	Pickering & Smith No 6	400
1,	Lee & Apple	50
2,	Waco Oil Co (old)	rig
2,	Coast Oil Co No 28 (old)	rig
2,	do do No 29 (old)	rig
2,	do do No 30	rig
2,	Nameless Oil Co	drilling
2,	Mrs J G Williams	800
2,	Farrel & Snyder (old)	rig
3,	Coyle & Co (old)	rig
4,	Charles Taylor (old)	rig
4,	Minnow Oil Co No 4	rig
4,	do do No 5	rig bldg
11,	R Carol No 4	rig
11,	Griffin & Co	500
11,	Lowcomer & Turner (old)	rig
11,	Duke & Norton Oil Co No 3	100
12,	Allen & Morse No 1	700
12,	do do No 3 (old)	rig
50,	The Union Oil Co No 4	800
50,	do do No 5 (old)	rig
New rigs		4
Old rigs		9
Drilling		8
Total		21

Alma.

1,	Phillips Bros No 10 (old)	rig
1,	do do No 11	rig bldg
4,	Craue & Co (old)	rig
4,	Matson & Thompson No 8	200
4,	do do No 9	rig bldg
4,	Chamberlain & McConnell No 6	800
4,	do do No 7	rig
17,	Col Scott No 5	rig bldg
17,	Carlin, Bussell & Co No 6	300
17,	New Milford Oil Co No 4	200
17,	do do No 5	rig hldg
18,	Manhattan Oil Co No 11	600
19,	do do No 12	100
13,	do do No 13	rig
19,	H L McMullan No 6	rig
20,	Willets & Lovell No 16	200
20,	Straight & Hostetter No 10	800
20,	do do No 11	rig
20,	do do No 12	300
20,	Willets & Duke No 7	sand
20,	do do No 8	rig
21,	Finnigan & Co No 10	rig
21,	do do No 11	sand
21,	do do No 12 (old)	rig
23,	Dow & Browning No 5	600
23,	do do No 6	rig bldg
24,	Vance & Horton No 9	1000
24,	do do	2 rigs
24,	do do	rig bldg
24,	Sutherland No 4	rig
24,	W F Jones	sand
24,	Flannigan & Cheeseman No 4	1250
24,	do do No 5	1000
24,	do do No 6	rig
24,	do do No 7	rig hldg
24,	F H Parkman	rig
	Applebee	rig bldg
	New Milford Oil Co	rig bldg
28,	Harding & Co	sand
38,	E T Anderson & Co No 9	rig
38,	Koch Bros No 3	rig
23,	do No 3	rig
38,	Weiser Bros & Wally No 1	1200
38,	do do No 4 (old)	rig
38,	do do No 5 (old)	rig
38,	do do No 6	rig bldg
38,	do do No 7	rig bldg
38,	do do	200
38,	do do No 22	300
38,	do do	4 r bldg
39,	McCoy & Weeter	600
39,	do	rig bldg
40,	A T Palmer No 5	1200
40,	do No 6	600
40,	do No 7	rig
40,	do No 8	rig
66,	Crawford & Co	sand
71,	Willets (shut down)	800
83,	Wilson & Smith	850
87,	Howard, O'Conner & Shanley	300
88,	Duke & Co (old)	rig
100,	Jacob Mosher	900
106,	Dobbins & Thornton	100
107,	Ira W Shirley	rig
114,	Haymaker & Gaskell	rig hldg
	Near saw mill, Baldwin, McCoy & Weeter	850
124,	L Willets & Co	drilling
142,	Bolivar Oil Co	300
142,	Elliott & Co	800
143,	I W Shirley No 4	500
	Pikeville, Harkness	rig
	California Hollow, Gilfillan	drilling

Ulster Farm, Anderson	drilling
New rigs	35
Old rigs	6
Wells drilling	36
Total	77

Wirt.

33,	Wellman, Miner & Fuller, No 16	drilling
33,	do do	rig bldg
41,	M C Mulkin	drilling
50,	Lester, Peters Bros & Co	600
	Bussell & Johnson No 4	drilling
	Nile, Nile Oil Co No 3	300
25,	Fertig Bros No 2	rig bldg
58,	Lester Jordan No 1	rig bldg
Rigs		3
Wells drilling		5
Total		8

Bolivar.

6,	Bunnell & Day No 3	sand
6,	Murphy, Fiskel & Co	rig
6,	Collins No 3 (old)	rig
7,	McDonnell & Stitt No 4	600
7,	J D Downing No 6	sand
7,	do do No 7	sand
7,	do do No 8	rig
7,	W & J Duke No 3	300
7,	do	rig
7,	do	rig bldg
7,	Coast & Sons No 17	500
7,	do No 18 (old)	rig
7,	do No 19 (old)	rig
7,	do No 20	rig bldg
7,	do No 21	rig
7,	do No 22	rig
7,	do No 23	300
7,	do No 25	rig bldg
7,	do No 28	rig bldg
7,	Coast & Lego No 4	200
7,	do	rig bldg
7,	A A Hopkins No 16 (old)	rig
8,	Empire Gas Co No 1	500
8,	do do No 2	rig bldg
14,	A L Robertson & Boggs	rig
15,	A L Robertson & Woodard No 3	rig
	Irvine & Morgan	rig
16,	Empire Gas Co	rig bldg
24,	do do No 3	rig
24,	H M Ernst No 4	300
24,	do No 5	rig bldg
24,	Riley Allen No 5	500
24,	do No 6	900
23,	Johnson & Conroy No 5	500
23,	do do No 7	rig
30,	H Stewart	rig
30,	do	rig bldg
31,	Hydrick	400
31,	do	rig bldg
31,	Fisher Oil Co No 3	400
31,	Miller No 6	700
31,	Miller No 8 (old)	rig
31,	Hanley & O'Shea No 15	drilling
63,	H F Northrup	drilling
New rigs		21
Old rigs		5
Drilling		18
Total		44

Clarksville.

1,	Dickinson	1000
3,	Empire Gas Co No 1	rig
9,	Heuston & Brecht No 4 (old)	rig
9,	Merritt & Co	rig
9,	Childs, Hill & Co	300
10,	Warner & Gleason	50
12,	Barton & Co	500
12,	do	rig
17,	William Cranston	rig bldg
17,	H Werthman	rig bldg
18,	Mahan Oil Co (old)	rig
18,	McKelvany & Heuston	rig

New rigs	6
Old rigs	2
Wells drilling	4
Total	12

Genesee.

7,	Rollin Dow (old)	rig
8,	I Willets No 48	900
8,	do No 50	drilling
8,	do No 51 (old)	rig
8,	do No 52 (old)	rig
8,	do No 53	rig
14,	Strickler & Co	rig
14,	Chauncey Oil Co No 16 (old)	rig
14,	Durkee & Co No 5	rig
14,	Davis & Perrin	2 rigs
14,	Empire Gas Co (old)	rig
15,	McCalmont Oil Co No 26	1150
15,	do do No 31 (old)	rig

15, do do No 32 (old) . . .	rig
15, do do No 20 . . .	rig
15, do do No 21 . . .	rig
15, do do No 22 . . .	rig
15, do do No 23 . . .	rig
15, do do No 24 . . .	rig
21, J B Bradley No 1 . . .	500
21, M L Lockwood . . .	rig
22, I Willets No 8 . . .	sand
22, do No 9 . . .	600
22, do No 10 . . .	drilling
22, do No 11 (old) . . .	rig
22, do No 12 . . .	rig
22, do No 13 . . .	rig
23, Hughes & Coughlin No 8 . . .	800
23, do No 9 . . .	rig
23, Emery Oil Co No 9 . . .	200
23, do No 10 . . .	200
23, do No 11 . . .	rig
23, do No 12 (old) . . .	rig
—Champlain Farm, Emery Oil Co No. 6 (old) . . .	
23, McCalmont Oil Co (old) . . .	rig
29, William Cranston No 1 (old) . . .	rig
29, do No 2 (old) . . .	rig
30, McCalmont Oil Co No 20 . . .	500
30, Davis & Co . . .	rig
31, Hugh L McMullan (old) . . .	2 rigs
38, C E Young & Co . . .	rig
New rigs . . .	
Old rigs . . .	17
Drilling . . .	15
Total . . .	43

Miscellaneous.

Franklinville, Olean parties . . .	drilling
Wellsville, Palmetto . . .	rig bldg
Tioga county, Whitehead & Co . . .	rig
Shingle House, Doyle & Co . . .	drilling
Scio, Willets, Cochran & Foreman . . .	400
Willing (lot 73) Thornton . . .	drilling
New rigs . . .	
Old rigs . . .	3
Wells drilling . . .	3
Total . . .	6

Bradford Field.*East and West Branches.*

Farm.	Operator.	Depth.
Bingham, G H Van Vleck, No 24 (old) .		rig
do do No 26 (fish'g) .		1700
do lot 168, R J Straight No 5 (fishing) . . .		1000
do lot 168, R J Straight No 6 . . .		rig
do Forest Oil Co No 11 . . .		rig bldg
do lot 178, F W Andrews . . .		rig bldg
Fox, Joseph Stettheimer No 4 . . .		600
do Caldwell, Hamsher & Co No 2 . . .		1000
do do do No 3 . . .		rig bldg
Dent, P C L & P Co No 55 . . .		1200
do do do No 56 . . .		drilling
do do do No 57 . . .		250
do do do No 58 . . .		rig bldg
do Whitney & Wheeler No 32 . . .		1800
do do do No 33 . . .		1800
do do do No 34 . . .		250
do do do No 35 . . .		rig
Lovejoy, Willoughby & Thayer No 2 .		300
do do do No 3 . . .		rig bldg
Jewett, Hamsher, Weaver & Co No 9 .		rig
Brown, Murphy & Co . . .		rig
Taylor, Atlas Oil Co No 7 . . .		drilling
Kissam, Beach, Atwater & Co No 2 . .		500
do do do . . .		rig
King, Murphy & Co . . .		rig
McKellop, McClure & Co . . .		600
do do . . .		rig
Renner, Harris & Co . . .		drilling
Willis, McCray Bros . . .		600
Owens Purchase, Hall & Slocum . . .		100
Mack, Chapin & Co No 3 . . .		sand
McKeown, Bayne, Fuller & Melvin . .		drilling
do do . . .		rig
B I Taylor, Zeigler & Rischer No 5 . .		500
Hawkins, Union Oil Co No 13 . . .		rig
Craft, Roy & Archer No 9 . . .		100
Reed, Bradford Oil Co . . .		150
Reed, do do . . .		rig
Beardsley, Bronson & Curtis . . .		800
McKenna, Logan No 3 . . .		75
Freeman, Scofield & Sage . . .		drilling
Kingsbury, Wade . . .		400
Miller, Sherman . . .		100
N W M Co, Union Oil Co No 19 . . .		rig
Yeomans, Westmoreland Oil Co . . .		rig
Foster, Dale & Co . . .		100
Foster, Dale & Co . . .		rig
Beckwith, Beardsley & Co . . .		500

Quintuple.

Lot.	Owner.	Depth.
25, E Strong & Co No 2 (old) . . .		rig
44, J W Humphrey (old) . . .		rig
50, B F Brinton . . .		600
83, Pat Newell . . .		rig bldg
110, L E Hamsher . . .		700

196, Boggs & Sterrett . . .	rig bldg
208, Bradley . . .	rig
211, Joseph Boggs . . .	200
284, Splain & McDonald . . .	rig
New rigs . . .	
Old rigs . . .	22
Drilling . . .	3
Total . . .	57

Kendall Creek.

Berger, P T & W C Kennedy No 5 . .	sand
Moore, Westmoreland Oil Co No 12 . .	rig
Duke, Suhr & Shopperle No 2 . . .	100
Moore, A S Palmer No 7 (old) . . .	rig
Duke, Charles Duke . . .	rig
Bradley, Zane & Taylor No 10 . . .	rig
do Fertig & Co . . .	rig
Borden, Urquhart & Lavens No 6 . . .	100
do Bradley & Co No 6 . . .	600
Norton, Clark . . .	rig
Melvin, P C L & P Co No 79 . . .	rig
Shedd, P O Buchanan . . .	drilling
Chamberlain, Thompson & Lane . . .	1000
do do . . .	rig
E T Co, Forest Oil Co No 29 . . .	rig
Dennis, Roth & Pepper No 16 . . .	rig
Berger, P T & W C Kennedy, No 5 . .	sand
New rigs . . .	
Old rigs . . .	9
Drilling . . .	7
Total . . .	17

Foster Brook.

E T Co, E T Co No 79 . . .	300
do Boyne, Penny & Coleman No 2 . .	50
do do do No 3 . . .	1000
do do do No 4 . . .	rig bldg
do H L Blackmarr & Jones No 11 . .	sand
do do do No 12 . . .	1000
do do do . . .	3 rigs
do F W Mitchell No 8 (fishing) . .	sand
do F L Blackmarr & Post . . .	800
do do do . . .	200
do do do . . .	rig
do A E Jones . . .	rig
Willets, I Willets No 27 . . .	rig
do O C Smith . . .	1000
C B & H, 31, Vandergrift & Miller No 5 . .	rig bldg
do Frank Smith No 3 (old) . . .	rig
do Coldren & Wolf . . .	drilling
do Wilder . . .	rig
Derrick City, George Corson . . .	rig bldg
New rigs . . .	
Old rigs . . .	10
Drilling . . .	1
Total . . .	21

Four Mile.

Van Campen Wm M Brown . . .	sand
do do . . .	800
do do . . .	300
do do . . .	2 rigs
do do . . .	2 r bldg
do Geo Van Campen & Son . . .	400
do do . . .	3 r bldg
do Nelson & Jones No 3 . . .	100
do Wm Doe . . .	rig
Zaph, Franchot Bros . . .	1500
do do (old) . . .	rig
do do . . .	rig
do do . . .	rig bldg
Waters, Moore & Coast . . .	600
do Carrol Bros No 2 (old) . . .	rig
Widow Carrol, C J Hickey . . .	rig
do Thomas Kervin No 2 . . .	1800
do do No 3 . . .	300
do do No 4 . . .	300
do Collins (old) . . .	rig
Moultrous, John Coast No 6 . . .	1200
Stevens, William Stevens . . .	200
do William Chambers . . .	1100
do do . . .	200
do do . . .	rig bldg
Sparger, Chamberlain . . .	1300
Carrol, D W Ward . . .	100
Garr, Tuna Oil Co . . .	1600
Stevens, Book, Rhodes & Brown . .	1000
Stevens, Jefferson Varney . . .	rig
Wessell, Burns & Co . . .	rig
New rigs . . .	
Old rigs . . .	14
Drilling . . .	3
Total . . .	35

Indian Creek.

Henry Loup, Levens . . .	600
Pine Lot, K G Bailey No 9 . . .	rig
do do No 10 . . .	rig
do do No 11 . . .	rig
do do No 12 . . .	rig
Shattuck, Emery Oil Co No 8 . . .	100

Meek's Creek, John L McKinney & Co No 33 . . .	sand
Meek's Creek, John L McKinney & Co No 29 . . .	drilling
Indian Creek, Suhr & Justus . . .	1200
Loup, Hazlewood No 44 . . .	sand
do do No 45 . . .	50
do do No 46 . . .	rig
Barse, U O Co (Foreman agent) . . .	drilling
do do do . . .	2 rigs
do do Sloan & Son . . .	
North Branch, J D Downing (old) . .	rig
do do (old) . . .	rig
Keating, Forest Oil Co No 43 . . .	800
do do No 44 . . .	rig
Hamlin, Miller & Odell No 2 . . .	50
do Boyne & Co . . .	rig
Williams, Langdon . . .	1600
Zimmer, Keystone Gas Co . . .	100
Elling, Forest Oil Co No 2 . . .	rig
J H Campbell, A J Thompson and Forest Oil Co . . .	400
J H Campbell, A J Thompson and Forest Oil Co . . .	rig
Curtis, Riley Allen . . .	rig bldg
Curtis, Morse & Brown . . .	rig bldg
Morse, L E Mallory . . .	rig bldg
Hardison, Morse, Allen & Jones . .	rig bldg
Dodge, Shear Bros No 5 . . .	rig
Loup, Keystone Gas Co . . .	100
B O Co Purchase, Sparger No 6 . . .	500
do do No 8 . . .	rig
Zimmer, Shear Bros . . .	drilling
do do . . .	rig
do White & Levens . . .	900
do do . . .	rig
New rigs . . .	
Old rigs . . .	19
Drilling . . .	2
Total . . .	38

Cole Creek.

Bingham, Forest Oil Co No 33 . . .	700
Rew, Capt E Frawley (old) . . .	rig
Bingham, McKean Oil Co . . .	
do Johnson & Co No 119 . . .	rig bldg
do 550 Union Oil Co No 25 . . .	500
do 536 do No 26 . . .	400
do 535 do No 27 . . .	100
do 594 do No 28 . . .	rig bldg
do 418 do . . .	rig bldg
do 587 John McKeown No 11 . . .	600
New rigs . . .	
Old rigs . . .	3
Drilling . . .	1
Total . . .	5

Kinzua.

3977, Union Oil Co No 44 . . .	sand
3977, do No 49 . . .	100
3977, do No 50 . . .	rig
3977, do No 51 . . .	rig
Butts, Mumford & Shehan . . .	200
Bingham, 129, P T & W C Kennedy .	rig
do H P Malone No 22 . . .	200
do Capt Byrom . . .	drilling

Kinzua Village.

Campbell Porter & Conley (old) . . .	rig
Falconer, Book & Gartlan . . .	600
Campbell, Van Scoy & Co . . .	500
New rigs . . .	
Old rigs . . .	3
Drilling . . .	1
Total . . .	7

Warren and Forest.*Glade and Other Towns.*

Tract.	Operator.	Depth.
Wardwell reserve, Rhodes & Co No 6 .		100
do do K. H. McBride . . .		sand
Wardwell, Benedict & Robinson No 4 .		100
Mowris, King & Magee No 3 . . .		300
do do No 4 . . .		rig
Cobham, Wm Reed . . .		sand
do do No 5 . . .		350
do do (old) No 6 . . .		rig
do do No 7 . . .		rig
do do No 8 . . .		rig bldg
Railroad lands, Acme of Gall Oil Co . .		750
Hermon, Union Oil Co . . .		rig bldg
Stewart, Wesley Chambers . . .		rig bldg
Rankin, Taylor & Co No 1 . . .		200
Cogswell, McKelvy & Co . . .		rig
Irvine, Shackleton No 1 . . .		150
do Elliott No 1 . . .		200
Pleasant township, Chapin & Co . . .		800
Stillson Hill, Murphy & Co . . .		900
Uhl, Johnson & Co . . .		300
Leonhart, Beatty . . .		rig
Dunbar lands, Dr Hunter . . .		drilling
Northeast Russellburg, Vandergrift & Co . . .		700

Branch, S C Rhodes.	drilling
Beatty, Beatty No 15.	300
do " No 16.	rig bldg
Roy, James Roy.	sand
Lot 5440 (Elk Twp), Smithman & Mun-	
hall.	300
Garland, Dude Oil Co.	100
Swinton, Magee & Smith.	rig bldg
Icough, Icough.	200
Davis, Davis Bros.	rig
Schofield, A H Daniels.	rig bldg
Shuppen, Kuhn & Weible (old).	rig
New rigs.	11
Old rigs.	2
Drilling.	21
Total.	34

Clarendon.

Lot.	Operator.	Depth.
53, Union Oil Co (old).		rig
55, Beatty No 30 (old).		rig
55, do No 31.		rig
55, do No 32.		rig
79, C O Duffield.		100
79, Union Oil Co No 7.		200
79, do do No 8 (old).		rig
79, Kuhn & Co.		1200
79, Adams & Story.		rig
79, Fertig & Henne.		400
80, Thayer & Croshy.		900
105, Shugart No 6.		600
105, do No 7.		rig
105, Pratt No 1.		rig
106, Gilbert & Gilson, fishing.		600
106, Shugart No 6.		rig
106, Lapham No 15.		1100
465, Benedict No 11.		50
497, Benedict No 12.		rig
496, Riddlesperger & Co.		600
496, Mattison & Co.		300
497, Payne.		rig
497, Romain No 5.		500
497, do No 6.		rig
497, Mooney & Griffin No 2.		600
497, Pratt & Co No 8.		800
498, Pratt & Co.		900
526, F Keatly No 1.		rig
527, S C Rhodes No 6.		rig bldg
527, Rockwell & Co No 2.		rig
527, Beecher & Copeland.		rig bldg
530, Whitehill & Co.		rig bldg
555, O'Donnell & Mitchell.		rig bldg
557, Bown Bros.		sand
557, Gailey & Gufey.		sand
561, Rockwell & Co No 3.		800
586, Warren Gas Co.		800
591, Markham & Co.		700
675, Wade & Co.		rig
New rigs.		16
Old rigs.		3
Drilling.		20
Total.		39

Tiona.

Lot.	Operator.	Depth.
109, J S Patterson No 3.		900
109, do No 4.		rig bldg
109, Short & Oyster No 2.		rig
109, do No 7 (old).		rig
109, do No 8.		rig
109, Hill & Conley No 4.		rig bldg
103, Fertig & Henne No 7.		400
110, do 4.		600
110, do (old).		2 rigs
110, do 5.		rig
159, do 5.		500
159, do 6.		rig
159, do 9.		800
159, do 10.		rig
160, W Toby.		rig bldg
164, Helm & Mealey, old.		rig
165, Pagett & Co No 11.		rig

165, do No 12.	rig bldg
165, Illill & Powell No 1.	100
165, do No 6.	sand
165, do No 7.	rig bldg
165, R Coughlan.	rig
165, Patterson No 9.	900
165, do No 11.	200
165, do No 12.	200
165, do No 13.	rig
165, do No 14.	rig
163, do No 15.	rig bldg
200, Wesley Chambers No 1.	900
200, do No 2.	900
200, do No 3.	rig bldg
204, Dunn Bros No 1.	975
205, O'Donnell & Co No 3.	800
152, G H Dimick (old).	rig

New rigs.	16
Old rigs.	5
Drilling.	14
Total.	35

Cooper District.

Tract.	Operator.	Depth.
Henry lands, Anchor Oil Co No 33.		1000
do Syndicate No 11.		400
do do 14.		rig
do McCalmont Oil Co No 6.		1500
do do 18 drilling.		rig bldg
do do 19 rig bldg.		rig
3198, Clark, Foster & Murphy No 5.		sand
Williams, J L McKinney & Co.		sand
Cooper, M W S & Co No 29.		1400
do do No 30.		rig
do do No 31.		rig bldg
Lot 438, Shank & Emery.		900
Clapp, J M Clapp No 3.		rig

New rigs.	6
Old rigs.	0
Drilling.	7
Total.	13

Balltown.

Lot.	Operator.	Depth.
5236, May, Kelley & Grandin No 19.		rig
3194, Porcupine Oil Co No 16.		250
3194, do do No 17.		sand
3194, do do No 18.		rig
4821, Balltown Oil Co No 16.		rig
4821, do do No 17.		1200
4821, do do No 18.		400
3195, J A Gartlan No 2.		800

New rigs.	2
Old rigs.	1
Drilling.	5
Total.	8

Miscellaneous.

Forest county Warrant 5104, Syndicate	600
Eldred Township, A Ludlow.	rig
Ridgway, Ridgway Gas Co.	300
Rigs.	1
Drilling.	2
Total.	3

Lower Country.

Venango.

Farm.	Owner.	Depth.
Rembold, Dale Bros & Smullin.		300
do Woods & Graham.		300
McKinley, Trax & Cramer.		350
Algeo, Lee & Swan.		200
Fish, Warner & Co.		600
McBride, W Hulings.		200
McCalmont, McCalmont & Co.		600

Long, Myers & Co.	700
Hughes, Fisher Bros.	rig
Rumbold, Dale Bros & Smullin.	rig
McCalmont, Unknown.	rig
do McCalmont & Co.	rig
Oberley, Oberley & Co.	rig
Paget, Fisher Bros.	rig
Diamond, Loats & Co.	rig
Horse Creek, W L Lay.	550
Hughes, Hughes Bros.	sand
Boyle, Roess Bros.	500
Cuhbison, Roess Bros & Co.	750
Bearey, Richardson & W.	200
Flinchbaugh, Dale Bros.	800
Barber, Judd & Lewis Bros.	100
Flinchbaugh, Dale Bros.	50

Vicinity Emlenton.

B Russell, Baum & Co.	400
Weller, Weller.	rig
do E Goodrich.	rig
Hunter, Weaver & Co.	rig
Moriarty, Moriarty.	rig
Engle, Engle & Co.	rig
Martin, Martin.	rig
Catholic church lot, Mackin & Co.	125
S Crawford lot, S Crawford.	750
Kountz, Cooper & Co.	200
Weller, Weller & Co.	100
McCullagh, Porterfield & McCombs.	700
Foster, Foster.	500
Mitchell, Hamilton & Co.	1000
Kreis, Kreis & Co.	800
Mackin, Mackin & Co.	200
Middleton, Emlenton Gas & Fuel Co.	1000

Rigs.	13
Wells drilling.	27
Total.	40

Clarion.

Updegraff, Jeannerette & Co.	400
Fenton, William Fenton.	400
Graham, J C Bartlett & Co.	400
Lehigh, Pye & Co.	200
Alt, Alt Bros.	600
Sweitzer, Bartlett & Co.	1100
Mehrton, F J Harley.	250
Fillman, J Fillman & Co, fishing.	1100
Keating, William Seber.	575
Graham, J C Bartlett & Co.	rig

Rigs.	1
Wells drilling.	9
Total.	10

Butler and Armstrong.

Kaltenbach, Forest Oil Co.	300
Huselton, Baldrige Oil Co.	400
Wallace, A Sheidemantle.	rig bldg
Allshouse, Forest Oil Co.	rig bldg
Martin, Showalter Bros & H.	310
Hildebrand, Hildebrand Oil Co.	550
Gillespie, Waterman & Co.	500
Byers, Stevens & Co.	1400
Fisher, J C Widner.	1000
Kamerer, W S Williams.	650
Vasbrink, Showalter Bros & H.	rig
Mulligan, McGuire & Co.	rig
Campbell, Denison & Hoyt.	rig
Thompson, Hyland & Co.	sand
Renfrew, Phillips Bros.	1000
McCalmont, do.	400
do do.	125
Wallace, A Shidemantle.	150
do do.	500
Blymiller, S M Hall.	sand
Royal, Grant.	200

Rigs.	5
Wells drilling.	16
Total.	21

RUSSIAN petroleum yields from 6 to 40 per cent. of paraffine, and only 30 per cent. at the most is available for burning fluid. Excellent lubricating oil is made from the seventy per cent. remaining after the refined portion has been distilled. The heavy oils are also used for fuel on many of the steamers trading on the Caspian Sea and the Volga river. On board the vessels which have adopted this system of heating, the combustible naptha is stored in sheet-iron cisterns, slightly less than one-sixth of an inch in thickness, being raised by a mechanical appli-

ance into a receiver placed above the boilers, and having undergone a filtration during its removal. A steam jet assists in rendering its combustion more perfect when it is consumed beneath the boilers.

THE McCalmont Oil Co. has purchased the Wetmore, Howe & Co., property in the Sheffield district. The purchase includes 10 wells, all of lots 408, 435, 437 and 25 acres of lot 397. The same company has also bought of Clark & Foster 5 wells and 73 acres on lot 397.

FIELD OPERATIONS SUMMARIZED.

Wells Completed, With the Estimated Production on the Last Day of the Month.

ALLEGANY.			
Division of Field.	NOVEMBER, 1883.		
	Wells.	Prod'n.	Dry.
Scio	12	117	1
Alma	39	349	36
Wirt	6	63	6
Bolivar	28	276	26
Clarksville	7	43	4
Genesee	27	258	19
Miscellaneous			6
Total	119	1106	3

DECEMBER, 1883.			
Wells.	Prod'n.		
	Dry.		
12	107		
36	325	1	
6	65		
26	221		
4	38		
19	197		
6			
109	953	7	

BRADFORD FIELD.			
Division of Field.	NOVEMBER.		
	Wells.	Prod'n.	Dry.
E. & W. Branches	28	259	28
Kendall Creek	10	78	10
Foster Brook	12	115	10
Four Mile	12	98	14
Indian & Meeks Cr'ks	22	185	16
Cole Creek	7	160	8
Kinzua	9	78	4
Total	100	973	2

DECEMBER.			
Wells.	Prod'n.		
	Dry.		
28	228	3	
10	86		
10	88	1	
14	122	1	
16	137		
8	132		
4	30		
90	823	5	

WARREN AND FOREST.			
District	NOVEMBER.		
	Wells.	Prod'n.	Dry.
Glade	15	273	12
Clarendon	18	174	16
Tiona	17	116	9
Cooper	14	743	7
Balltown	8	665	3
Total	72	1971	6

DECEMBER.			
Wells.	Prod'n.		
	Dry.		
12	84	2	
16	153	1	
9	57	2	
7	395		
3	440		
47	1129	5	

LOWER COUNTRY.			
District	NOVEMBER.		
	Wells.	Prod'n.	Dry.
Venango	28	158	13
Clarion	2	20	1
Butler and Armstrong	10	143	10
Total	40	321	4

DECEMBER.			
Wells.	Prod'n.		
	Dry.		
13	60	4	
1	2		
10	143		
24	205	4	

GRAND SUMMARY.			
District.	NOVEMBER.		
	Wells.	Prod'n.	Dry.
Allegany	119	1106	3
Bradford	100	973	2
Warren and Forest	72	1971	6
Lower Field	40	321	4
November Total	331	4371	15
December Total	270	3110	21
Difference	61	1261	6

DECEMBER.			
Wells.	Prod'n.		
	Dry.		
109	953	7	
90	823	5	
47	1129	5	
24	205	4	
270	3110	21	

Rigs Up and Building.—Wells Drilling.

ALLEGANY FIELD.			
Division of Field	DEC. 1, 1883.		
	New Rigs.	Old Rigs.	Drilling.
Scio	7	8	15
Alma	37	6	44
Wirt	5		5
Bolivar	28	4	25
Clarksville	5	1	5
Genesee	18	12	15
Miscellaneous	3		6
Total	103	31	115

JAN. 1, 1884.			
New Rigs.	Old Rigs.		
	Drilling.	Total.	
4	8	21	
35	36	77	
3	5	8	
21	18	44	
6	2	12	
17	11	43	
3	3	6	
89	85	211	

BRADFORD FIELD.			
Division of Field.	DEC. 1, 1883.		
	New Rigs.	Old Rigs.	Drilling.
E. & W. Branches	13	8	33
Kendall Creek	6		12
Foster Brook	9	2	12
Four Mile	11	4	17
Indian Creek	9	2	13
Cole Creek	3	1	5
Kinzua	6	3	3
Miscellaneous			
Total	57	20	95

JAN. 1, 1884.			
New Rigs.	Old Rigs.		
	Drilling.	Total.	
22	32	57	
9	7	17	
10	1	21	
14	3	35	
19	2	38	
3	1	9	
3	7	11	
80	96	188	

WARREN AND FOREST.

Division of Field.	DEC. 1, 1883.		
	New Rigs.	Old Rigs.	Drilling.
Glade	10	3	10
Clarendon	15	4	15
Tiona	10	1	13
Cooper	3	1	8
Balltown	4	1	5
Miscellaneous			2
Total	42	10	53

JAN. 1, 1884.			
New Rigs.	Old Rigs.		
	Drilling.	Total.	
11	2	21	34
16	3	20	39
16	5	14	35
6	1	5	12
2		1	8
1			2
52	11	67	130

LOWER COUNTRY.

Division of Field.	DEC. 1, 1883.		
	New Rigs.	Old Rigs.	Drilling.
Venango	15		16
Clarion	8		2
Butler & Armstrong	5		16
Total	28		34

JAN. 1, 1884.			
New Rigs.	Old Rigs.		
	Drilling.	Total.	
13	27	40	
1	9	10	
5	16	21	
19	52	71	

GRAND SUMMARY.

Field.	DEC. 1, 1883.		
	New Rigs.	Old Rigs.	Drilling.
Allegany	103	31	115
Bradford	57	20	95
Warren & Forest	42	10	53
Lower Country	28		34
Total Dec. 1	230	61	297
Total Jan. 1	240	60	300
Decrease	10	1	3

JAN. 1, 1884.			
New Rigs.	Old Rigs.		
	Drilling.	Total.	
89	37	85	211
80	12	96	188
52	11	67	130
19	52	71	
240	300	600	

Table of Daily Averages in Barrels, of Runs, Shipments, Charters and Exports — 1880-3.

1880.				
	Runs.	Shipments.	Charters.	Exports.
January	67,750	52,403	18,303	36,337
February	62,952	47,707	22,996	25,785
March	67,326	51,671	18,954	24,635
April	68,147	27,172	12,483	17,849
May	59,176	28,439	18,375	15,033
June	70,231	25,302	38,843	24,726
July	71,207	33,672	35,419	31,646
August	71,253	43,033	30,270	42,059
September	68,032	41,180	33,566	35,791
October	70,445	53,739	17,509	31,973
November	67,858	40,567	21,746	18,925
December	70,062	43,097	20,425	24,311

1881.				
	Runs.	Shipments.	Charters.	Exports.
January	66,101	34,701	20,153	16,080
February	70,781	31,968	30,952	24,816
March	77,554	33,171	28,431	31,686
April	80,621	45,101	32,002	27,947
May	83,684	50,651	51,890	33,600
June	88,184	50,227	50,634	62,613
July	87,503	62,918	62,924	41,800
August	91,864	72,338	44,411	63,509
September	84,603	71,777	64,061	49,493
October	88,545	67,791	32,144	48,925
November	76,603	66,563	34,844	48,590
December	81,786	64,235	42,106	37,562

1882.				
	Runs.	Shipments.	Charters.	Exports.
January	73,769	56,679	32,612	29,543
February	83,547	63,853	43,521	33,869
March	83,732	53,858	41,644	34,366
April	81,125	57,471	33,442	44,887
May	86,957	59,794	47,109	48,468
June	95,786	74,583	54,494	68,775
July	104,306	77,940	33,984	64,600
August	105,825	66,527	38,069	41,025
September	96,541	66,928	42,121	37,040
October	85,840	67,979	30,145	33,780
November	74,589	48,321	49,054	38,113
December	72,419	36,432	42,890	25,623

1883.				
	Runs.	Shipments.	Charters.	Exports.
January	65,125	43,813	23,023	32,493
February	65,208	44,352	25,618	34,380
March	64,404	52,737	37,073	26,430
April	69,207	63,612	40,345	
May	69,445	61,411		
June	70,443	58,259	48,449	
July	65,628	52,722	39,634	
August	68,877	67,306	49,610	
September	66,210	77,582	47,606	
October	67,649	71,621	44,746	
November	65,281	68,829	25,301	
December	64,120	56,434	29,285	

OFFICIAL STATEMENT, EXPORTS OF PETROLEUM, NOVEMBER, 1883.

BY JOSEPH NIMMO, JR., CHIEF OF BUREAU OF STATISTICS, WASHINGTON, D. C., JAN. 11, 1884.

CUSTOMS DISTRICTS.	MINERAL CRUDE.		NAPHTHAS.		ILLUMINATING.		LUBRICATING AND PARAFFINE OIL.		RESIDUUM.		TOTAL.	
	Gallons.	Dollars	Gallons.	Dollars	Gallons.	Dollars.	Gallons.	Dollars	Gallons.	Dollars	Gallons.	Dollars.
Boston & Charlestown, Mass.					378,612	44,149	27,500	12,120			406,112	56,269
New York, N. Y.	5,590,780	442,592	1,898,753	123,139	29,236,128	2,596,770	915,916	179,718	409,416	33,214	38,051,023	3,366,433
Philadelphia, Pa.	250,338	17,524			6,900,522	634,510	47,680	9,913			7,198,540	661,947
Baltimore, Md.					842,644	71,492			152,166	7,056	994,810	78,548
San Francisco, Cal.					34,170	7,668	548	419			34,718	8,087
All other districts.	1,045	46	5,959	751	229,040	32,870	34,958	7,287			271,002	40,954
Total for Nov. 1883	5,842,163	460,162	1,904,712	123,890	37,621,116	3,387,459	1,026,632	200,457	561,582	40,270	46,956,205	4,212,238
Total for Nov. 1882	4,136,662	341,756	1,661,848	150,407	28,918,474	2,617,850	787,199	177,590	346,836	20,517	35,851,019	3,308,120
Total for 11 months, ended Nov. 30, 1883.	53,607,418	4,018,368	16,024,268	1,113,638	410,513,392	36,554,763	9,257,834	2,010,879	6,156,780	438,922	495,559,692	44,136,570
Total for 11 months, ended Nov. 30, 1882.	41,595,778	3,096,060	15,743,749	1,210,618	404,020,102	35,349,930	7,865,804	1,752,765	4,065,390	260,787	473,290,823	41,670,160

THE CRUDE MARKET FOR DECEMBER, 1883.

Day of Week.	Day of Month.	Bradford.				Oil City.				New York.				Pittsburgh.			
		Opened.	Highest.	Lowest.	Closed.	Opened.	Highest.	Lowest.	Closed.	Opened.	Highest.	Lowest.	Closed.	Opened.	Highest.	Lowest.	Closed.
S	1	116½	116¾	116½	116¼	116½	117	116½	116¼	116½	117	116½	116¾	116½	116¾	116½	116¼
M	3	116½	117	116¼	116¾	116½	117	116½	116¾	116½	117	116½	116¾	116½	116¾	116½	116¾
T	4	116½	116¾	115¾	115¾	116¼	116¾	115	115¾	116¼	116¾	115½	115½	116¼	116¾	115½	115½
W	5	115	115¼	113¾	113¾	115	115¼	113¾	113¾	115¼	115¾	113¾	113¾	115¼	115¾	113¾	113¾
T	6	113¾	114¼	113¾	113¾	113¾	114½	113¾	113¾	113	114½	113	114	113¾	114¾	113¾	114
F	7	114	115¾	114	115¾	114¼	115¾	114¼	115¾	114¾	115¾	114¼	115¾	114¾	115½	114¾	115½
S	8	116½	117¾	116½	116½	116¼	117¼	116¼	116½	116¼	117¾	116¼	116½	116¼	117¾	116½	116½
M	10	116½	116¾	115¾	115¾	116½	116¾	115½	115¾	116½	116¾	115½	115¾	116½	116¾	115¾	115¾
T	11	115¾	116	114	114¾	116	116¼	114	114	115¾	116	114¾	114¾	116	116	114	114
W	12	114¾	114¾	113¾	114¾	114¾	115¼	113¾	114¾	114¼	114¾	113¾	114¾	114¾	115	113¾	114¾
T	13	115	115	113¾	113¾	115	115¼	113¾	113¾	115¾	115¾	114	114	115	115	114	113¾
F	14	113¾	114¾	113¾	114¼	113¾	114¾	113¾	114¾	113¾	114¾	113¾	114¾	114	114¾	113¾	114¾
S	15	114¾	114¾	113¾	113¾	114¾	114¾	113¾	114	114¼	114¾	113¾	113¾	114¼	114¾	113¾	113¾
M	17	113¾	114¼	113¾	113¾	114½	114¾	113¾	113¾	113¾	114¾	113¾	113¾	113¾	114¾	113¾	113¾
T	18	114	114¼	112¾	113	114½	114¾	112¾	113	114¾	114¾	112¾	112¾	114¾	114¾	113	113
W	19	112¾	113¾	112¾	113¾	112¾	113¾	112¾	113¼	113	113¾	112¾	113¼	112¾	113¾	112¾	113¼
T	20	113¾	113¾	112¾	113	113½	113¾	112¾	113	113¾	113¾	112¾	112¾	113½	113¾	112¾	113
F	21	113¾	113¾	112¾	112¾	113	113¾	112¾	113	113	113¾	112¾	112¾	112¾	113¾	112¾	113
S	22	113¾	114½	113¾	114¼	113	114½	113	114¾	113¾	114¾	113¾	114¼	113¾	114¾	113¾	114¼
M	24																
T	25																
W	26	114¼	114½	113	113¾	114½	114¾	113	113	114¾	114¾	113	113¾	114½	114½	113¾	113¾
T	27	113¾	113¾	113	113¾	113¼	113¾	113	113¾	113¼	113¾	113¾	113¾	113¾	113¾	113¾	113¾
F	28	113¾	113¾	112¾	113¼	113½	113¾	113	113¾	113¾	113¾	113	113¼	113¾	113¾	113	113¼
S	29	113½	114¾	113¾	113¾	113¾	114¾	113¼	113¾	113½	114¾	113½	113¾	113¾	114¾	113¾	113¾
M	31	114	114	113¾	113¾	114	114	113¼	113¼	114	114	113½	113½	114	114¾	113¼	113¼

STOCKS ABROAD.

Reports of stocks in London, Trieste, and the seven principal continental seaports, are summarized in the following statement:

	Dec. 22, 1883	Nov. 17, 1883
Stocks Afloat and Ashore.	Barrels.	Barrels.
London	462,240	451,791
Trieste	84,543	68,807
Seven Continental Ports	1,551,040	1,896,212
Total Stocks afloat and ashore	2,097,823	2,416,810
Decrease in Stocks since Nov. 17	318,987	

A detailed statistical table giving the stocks on hand, the stocks in vessels on the ocean, and the amount unloading from the vessels at the different ports, is appended, which shows at a glance the condition of affairs abroad and the increase or decrease as compared with the corresponding period of 1882. The shipments represent amount of oil going to the interior of Europe from the seaports.

STOCKS IN FOREIGN PORTS DECEMBER 22, 1883.

	Stocks Week end'g Dec. 22		Stocks Afloat Week end'g Dec. 22		Unloading Week end'g Dec. 22		Grand Total Stocks Afloat & Unloading.		Receipts. Jan. 1 to Dec. 22.		Shipments Jan. 1 to Dec. 22.	
	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.	1882. Barrels.	1883. Barrels.
London	227,941	393,901	29,922	45,339	18,500	23,000	276,363	462,240	647,041	710,667	506,330	567,916
Trieste	43,875	9,309	18,829	65,234	9,100	10,000	71,804	84,543	271,985	161,184	270,094	193,244
Bremen	711,289	796,716	116,527	86,565	60,500	46,500	888,316	929,781	1,162,935	942,030	841,404	901,455
Hamburg	168,746	125,278	42,500	22,598	6,000	6,000	217,246	153,876	934,733	887,518	819,017	960,962
Antwerp	186,471	226,439	25,719	24,595	14,000	31,000	226,190	282,034	787,026	830,310	831,015	790,823
Rotterdam	51,994	47,478	33,075	15,063			85,069	62,541	266,321	189,661	228,125	217,414
Amsterdam	52,678	29,920		14,779	10,000		62,678	43,699	189,573	210,800	177,811	231,281
Stettin	39,372	61,720	10,883				59,255	61,720	276,976	253,417	266,700	224,798
Danzig	27,213	17,389	6,523				37,376	17,389	82,441	81,743	98,717	84,723
Total	1,237,763	1,303,940	235,227	163,600	90,500	83,500	1,563,490	1,551,040	3,700,005	3,395,479	3,262,789	3,411,456

	1880.	1881.	1882.	1883.
Total stocks exclusive Danzig, London and Trieste	907,776	773,595	1,210,550	1,286,551
Total afloat, exclusive Danzig, London and Trieste	130,972	204,472	228,704	163,600
Total unloading, exclusive Danzig, London and Trieste	81,800	187,600	90,500	83,500
Grand Total exclusive Danzig, London and Trieste	1,120,548	1,165,667	1,529,754	1,533,651
Total Shipments exclusive Danzig, London and Trieste	83,007	75,593	77,617	87,024
Total Shipments since January 1, exclusive Danzig, London and Trieste	2,834,282	3,363,270	3,164,072	3,326,633

STOCKS IN REGION FIRST OF EACH MONTH FOR 7 YEARS.

	1877.	1878.	1879.	1880.	1881.	1882.	1883.
January	2,816,870	3,086,972	4,506,492	8,552,256	17,145,104	25,761,051	34,335,144
February.	2,983,231	3,342,090	5,259,289	8,984,341	17,989,168	25,788,071	34,952,045
March	3,335,770	3,661,650	5,734,155	9,405,240	18,971,376	26,329,098	34,514,919
April.	3,394,011	4,218,518	6,234,842	9,834,457	20,048,772	27,255,326	35,594,680
May	3,423,675	4,640,852	6,638,691	11,001,304	20,771,342	27,969,884	35,500,859
June	3,304,302	4,908,450	6,838,762	11,737,890	22,108,640	28,833,715	35,642,245
July	3,046,389	4,983,145	7,104,347	12,720,220	23,192,207	29,402,854	35,985,935
August.	3,162,574	5,064,158	7,193,137	13,606,369	23,765,140	30,254,302	36,371,939
September	2,914,499	4,653,525	7,278,023	14,383,551	24,645,792	31,229,863	36,102,886
October	2,549,460	4,653,525	7,493,752	15,249,661	25,052,082	32,066,007	35,752,718
November	2,545,423	4,296,769	7,692,990	15,678,127	25,224,534	32,891,916	35,617,037
December	2,474,490	4,364,909	8,138,767	16,402,431	25,302,647	33,439,450	35,495,236

THE FUNK ESTATE WELL.

"The Syndicate," a company composed of the Union Oil Co., Forest Oil Co., Anchor Oil Co. and M. W. S. & Co., have lately secured a lease of the lands of the A. B. Funk estate, lying south of the Balltown field and southwest of the Cooper development. The warrants are formed by forty-five degree lines running in a northeasterly and northwesterly direction. It is understood that the company has agreed to drill a prescribed number of wells on this property and can operate slowly after oil is found in paying quantities. Their first well is situated 100 rods from the most easterly corner of lot 5,104. It is found on the south side of the north branch of Salmon Creek, about half a mile up the stream from the mouth of Coal Bank Run. The Clarion county sand, a formation extending over a wide extent of territory, was reached at a depth of 591 feet. It affords a fair showing of dark green oil, though in what quantities has not been demonstrated. This same showing of oil is found in some parts of the Balltown district and in other sections of the region. The Syndicate have erected a rig for No. 2, 1000 feet down the stream from No. 1, and when that is drilled will have the two wells produce what they will from the shallow sand. The Balltown sand is found about 890 to 900 feet below the Clarion sand and the Cooper sand 260 feet below that. There is a meagre chance for oil to be found in paying quantities somewhere in this Clarion county sand. The Syndicate No. 1 is about two and a half miles southwest of the dry hole drilled by Berry Bros. on Logan Run and one and three-quarter miles west of the Anchor Oil Co.'s duster on lot 5,102. The range of country between and southwest of these dry holes remains untested, and on this large area the Syndicate will bounce the drill. The Union Oil Co. or their able superintendent, Mr. Jacobs, has immediate charge of their field operations, and the work has been done under the name of the Union Oil Co. Careful levels have been taken

by an engineer of the different wells nearest to the well on 5,104. An aneroid barometer in the hands of the AGE field man showed that the Syndicate well was 285 feet higher than the well of Berry Bros. on Logan Run. One trial with a barometer is not sufficient to establish a difference in elevation between two points when the atmosphere is subject to numerous changes. The Cooper sand was struck at the Anchor Oil Co.'s well on 5,102 at a depth of 1,985 feet. The wells going down on the Funk lands are chance wells in a good geographical range, but only become bearish features when they disclose oil in paying quantities.

A BLAZING TRAIN.

A shocking accident from burning oil occurred about 10 o'clock in the forenoon of the 15th inst., resulting in the death of four persons and the injuring of more than twenty others. As the morning train from Wellsville, on the Bradford, Bordell & Kinzua Railroad, approached a point opposite the Anchor Oil Co.'s wells on the Buchanan farm, about a mile southeast of Tarport, it ran into a stream of oil that had run from a leaking or bursted tank, belonging to the Anchor company, on the hillside above. The oil ignited from the fire in the locomotive and in a moment the cars were covered with a sheet of flame, and the passengers, horror-stricken, sought escape through the doors and windows. The oil had run along the track for several hundred feet, and the road being down grade the train dashed through at fearful speed, splashing the liquid fuel all about. The engineer, Patrick Sexton, after reversing the engine, with the fireman jumped out of the flames into the welcome banks of snow. The cars ran some distance and jumped the track, holding three victims within to be burned to death. Their names are Miss Katie Moran, Mrs. L. C. Fair, and Mrs. L. Jones.

Francis Faught, the well-known collector of curiosities, was terribly burned and died the next day.

FIELD OPERATIONS—1883.

		JANUARY.			February 1, 1883.		
DISTRICT.	Wells Completed.	Production.	Dry	Rigs	Drilling.	Total	
Allegheny	60	705	6	60	60	120	
Bradford.	30	381	1	32	42	74	
Warren and Forest . . .	19	1380	2	18	14	32	
Lower Country	16	222	3	20	16	36	
Total.	125	2688	12	130	132	262	
		FEBRUARY.			March 1, 1883.		
Allegheny	67	804	12	70	64	134	
Bradford.	37	510	4	45	48	93	
Warren and Forest . . .	12	323	3	26	25	51	
Lower Country	115	274	4	14	12	20	
Total.	131	1911	23	155	149	304	
		MARCH.			April 1, 1883.		
Allegheny	71	937	2	110	81	191	
Bradford.	39	895	.	55	60	115	
Warren and Forest . . .	21	2315	6	32	48	80	
Lower Country	10	95	2	20	23	43	
Total.	141	4242	10	217	212	429	
		APRIL.			May 1, 1883.		
Allegheny	95	1152	4	93	94	187	
Bradford.	52	541	5	61	41	105	
Warren and Forest . . .	47	2129	11	50	63	113	
Lower Country	18	245	3	17	16	33	
Total.	212	4067	23	221	217	438	
		MAY.			June 1, 1883.		
Allegheny	117	1322	4	80	72	152	
Bradford.	43	659	2	61	59	120	
Warren and Forest . . .	52	1430	5	32	45	77	
Lower Country	17	154	6	10	32	42	
Total.	229	3565	17	183	208	391	
		JUNE.			July 1, 1883.		
Allegheny	94	1141	4	99	103	202	
Bradford.	55	647	.	69	57	126	
Warren and Forest . . .	52	2307	6	38	53	91	
Lower Country	19	287	7	17	20	37	
Total.	220	4382	17	223	233	456	
		JULY.			August 1, 1883.		
Allegheny	110	1167	7	105	101	206	
Bradford.	63	902	1	89	61	150	
Warren and Forest . . .	55	1668	8	48	47	95	
Lower Country	24	215	4	28	33	61	
Total.	252	3952	20	270	242	512	
		AUGUST.			September 1, 1883.		
Allegheny	128	1352	7	120	144	264	
Bradford.	98	1108	1	92	76	168	
Warren and Forest . . .	59	2331	9	39	77	116	
Lower Country	31	221	10	18	33	51	
Total.	316	5012	27	269	330	599	
		SEPTEMBER.			October 1, 1883.		
DISTRICT.	Wells	Production.	Dry	New Rigs .	Old Rigs.	Drilling . .	
Allegheny	161	1396	4	82	22	123	
Bradford.	85	928	1	74	18	83	
Warren and Forest . . .	60	3392	8	38	7	68	
Lower Field	28	207	8	16	4	35	
Total	334	5923	21	210	51	309	
		OCTOBER.			November 1, 1883.		
Allegheny	139	1244	6	106	22	131	
Bradford.	96	953	3	89	20	97	
Warren and Forest . . .	65	1857	10	39	15	68	
Lower Field	24	358	7	25	2	32	
Total	324	4412	26	259	59	328	
		NOVEMBER.			December 1, 1883.		
Allegheny	119	1106	3	103	31	115	
Bradford.	100	973	2	57	20	95	
Warren and Forest . . .	72	1971	6	42	10	53	
Lower Field	40	321	4	28	.	34	
Total	331	4371	15	230	61	297	
		DECEMBER.			January 1, 1884.		
Allegheny	109	953	7	89	37	85	
Bradford.	91	823	5	80	12	96	
Warren and Forest . . .	47	1129	5	52	11	67	
Lower Field	24	205	4	19	.	52	
Total	271	3110	21	240	60	300	

SUMMARY FOR 1883.

During the year just closed, there were no considerable areas of fresh territory added to the various producing districts in Pennsylvania and New York. The two prospective oil fields in Forest County, that were just beginning to attract attention, when the old year was in its infancy, have been gradually developed and proved of much smaller proportions than were at first thought possible. They have furnished a number of wells of the first magnitude, but the united production of the two districts at no time has exceeded eight thousand barrels for any ten or twelve consecutive days. But they have been important factors in maintaining the average yield, and have exercised a marked influence on crude values.

The striking feature of the year has been the remarkable staying qualities exhibited by the Bradford and Allegany fields. The disastrous results attending the Cherry Grove fiasco of 1882, gave the more conservative oil men a hearty dislike to oil seeking in a pebble rock field, and they returned to Bradford and Allegany sadder and poorer, but ever so much wiser men. The outlying lands of the Northern Oil Field were once more eagerly sought after, and the territory considered so light as to be almost valueless, with oil at less than two dollars a barrel was industriously drilled over. By the addition of these numerous new and small wells; the thorough renovation of the old ones, and with the aid of cheap torpedoes, used to a greater extent than was ever known before in the history of the trade, the production of Bradford and Allegany was maintained at nearly constant figures throughout the year. The tables that follow tell the results of the year's business in petroleum, in a concise and comprehensive manner:

STOCKS IN THE REGION.

		Barrels.
Net Stocks	Dec. 31, 1883	35,715,565
"	Dec. 31, 1882	34,335,144
		<hr/>
Increase		1,380,421
Daily Average Increase		3,782

The above includes the stock less sediment and surplus in the custody of the pipe lines, and takes no account of the stocks at the wells, which have been greatly diminished during the year.

PIPE LINE RUNS.

Total Pipe Line Runs for Year	1883	24,383,958
" " " " "	1882	31,659,478
Decrease		7,267,420
Daily Average Runs for	1883	66,803
" " " " "	1882	86,713
Average Decrease per Diem		19,910

SHIPMENTS FROM THE REGION.

Total Shipments from Oil Region, 1883	21,967,510
1882	22,273,818
Decrease in Shipments	306,308
Daily Average Shipments for 1883	60,185
1882	61,024
Average Decrease per Diem	839

The increase in gross stocks for the year 1883, as shown by the runs and shipments was as follows:

Total Runs for 1883	24,383,058
Total Shipments for 1883	21,967,510
Deduct Fire Loss Est.	2,415,548
	120,000
Total Increase Gross Stocks	2,295,548
Increase, as shown by table of Stocks above	1,380,421
Difference	915,127

Here is an apparent discrepancy of 915,127 barrels between the two methods of determining the increase in the stocks. The sediment and surplus account of the United Pipe Lines, is almost sufficient alone to explain the enormous difference.

United Pipe Line Sediment and Surplus, January	1,054,110
December	1,966,339

Increase in Sediment and Surplus	912,229
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EXPORTS FROM THE UNITED STATES.

	1883.	1882.
Total Exports, Refined, etc.	Gallons 516,782,170	492,409,097
Crude Equivalent	636,363,869	612,113,350
Total Increase in Gallons	24,250,519	
Daily Average Exports	Gallons 1,744,065	1,677,023
	Barrels 41,511	39,929
Average Increase per Diem		1,582

WELLS COMPLETED.

	Productive.	Dry.	Total.
No. Wells Completed, 1883	2,654	232	2,886
1882	3,089	180	3,269
Difference.	435	52	383

The wildcat ventures were more numerous in 1883 than the year preceding but, in general, they were unsuccessful as is shown by an increase of 52 in the number of dry holes.

THE CRUDE MARKET.

	1883.		1882.	
	Highest.	Lowest.	Av'ge.	Highest.
January	105 1/4	83 1/2	94 1/8	87
February	104 1/2	96 3/8	100 1/2	88 3/4
March	110	86	98	84 3/4
April	96 1/2	84 3/4	90 1/2	83
May	120	89 3/8	104 1/4	76 3/8
June	125	109 3/4	117 3/8	64 1/2
July	116 3/8	97 3/8	106 7/8	63 1/4
August	113 1/4	105 1/4	109 1/4	61 1/2
September	116 1/2	106 7/8	111 3/4	97
October	115 7/8	107 7/8	111 7/8	98 1/4
November	120	108 3/8	114 1/2	135
December	117 1/4	112 3/8	114 3/4	116
Highest for Year	125			135
Lowest	84 3/4			49 1/4
Fluctuation	40 3/4			85 3/4
Average Price	106 1/4			78 3/8

The yearly averages in the above table are derived by dividing the sum of the mean prices for each month in the year by the number of months. The figures are from the Bradford and Oil City markets.

The statistical history of the year 1883 may be summed up in the following brief statements of results:

1st.—The net stocks in the region increased 1,380,421 barrels during the year equivalent to a daily average of 3,782 barrels.

2d.—The pipe line runs decreased at the rate of 19,910 barrels a day.

3d.—The shipments from the region were 839 barrels per diem less than during the preceding year.

4th.—The exports of petroleum increased at the rate of 1582 barrels a day.

5th.—There were 383 fewer productive wells completed in 1883 than in 1882, and the number of dry holes discovered was 52 in excess of the number for the year preceding.

6th.—The highest price of oil certificates in 1883 was 10 cents below the highest price in 1882, but the price did not fall so low by 35 1/2 cents as in 1882.

7th.—The average price for 1883, exceeded the average price for 1882 by 27 7/8 cents.

THE M'CALMONT OIL CO.

President Kirk's Report for 1883.

To the Directors and Stockholders of McCalmont Oil Co.:

GENTLEMEN,—I herewith present you with statements of superintendent, engineer, and chief clerk, showing the possessions and condition of the company, also a complete epitome of its business for the year, showing gains, losses, purchases and sales of property, wells drilled, production for each month of the year, on the different properties, total production, and prices at which it was sold, and a large amount of other valuable information to which I invite your most careful examination and consideration. I summarize a few of the leading points for your benefit.

Land in fee purchased during the year	1,049.58 acres.
Leasehold estate during the year	3,128.43 acres.
Land in fee sold during the year	138.34 acres.
Total land fee and leasehold owned by the company	6,108.98 acres.
Wells purchased during the year	318
Royalty in wells purchased during the year	40
Wells sold during the year	8
Royalty in wells sold during the year	5
Wells drilled during the year	90
Wells owned by company at present	608
Royalty in wells owned by company at present	131

Total	739
No. of Boilers owned by company	165
Engines	548
miles of 5 1/2 inch Casing	37 3/4
2 " Tubing and Line Pipe	232 1/4
" Pipe, other sizes	65 3/4
Oil produced during the year, Bradford Field	188,203.07 Barrels
" " " " " Allegheny Field	329,699.97 "
" " " " " Warren and Forest	202,879.20 "

Total Production from all Fields	720,782.24 Barrels
Daily Average for December	2,419.32 "

Recent purchases and wells near completion should soon make it 3,000 barrels per day.

Average price at which oil was sold, \$1.06 1/2.

Net cost of producing oil, Bradford Field	53 I-3C.
" " " " " Allegheny	99 I-4C.
" " " " " Forest	52 I-5C.

Average	74C.
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This cost includes all expenses, labor, supplies, interest and discount, and losses on purchases, also shrinkage in value from decrease. The high cost in the Allegany field is caused by its rapid decline, thereby shrinking the value of the property.

Net Profit for the year	\$281,648.66
Dividends declared during the year	263,000.00

Two hundred thousand dollars of the dividends declared were out of the earnings of previous years.

The balance sheet herewith submitted shows as follows : *

The properties are valued as follows: All machinery at junk prices, or what it would sell for if property ceased to produce. The daily production, as shown by the average of previous months, is valued aside from machinery and materials at two hundred dollars per barrel, and royalty at five hundred dollars per barrel. Each separate property is charged monthly with all expenses thereon, also its shrinkage in value, so that the monthly balance sheet shows the actual value on the basis adopted. The cost of producing is predicated thereon.

The profits shown for the year are actual earnings on the same valuation. Many of our recent purchases have cost more than this but have been reduced to this basis, thus reducing our profits as shown by the books. The recent advance in price of production makes our property much more valuable than the valuation as above, taken from the books. Recent purchases in Warren county are valued at cost, while recent developments have enhanced their value.

It is idle to prognosticate on either the future price of oil or the prospect of a new field. "Sufficient unto the day is the evil thereof." "The past with us at least is secure." We have had a successful year. The capital and credit of the company have been utilized to their utmost, and rewarded with continued success.

To Messrs. T. E. Tack, secretary and treasurer; Warren McCreary, assistant president; Chas. Kirk, superintendent; J. L. Davidson, head clerk, and their assistants and subordinates, I am largely indebted for valuable, faithful, untiring and devoted service.

Respectfully submitted.

DAVID KIRK, President.

* We omit the balance sheet as it is too long for our space, showing as it does the most minute details of the company's business, including the value of forty-nine separate farms and tracts.

OBITUARY.

GEORGE D. WESTERVELT.—Killed December 23d, 1883, by the explosion of a boiler in the vicinity of Allentown, N. Y. His connection with the oil business dated back to Pithole. He owned wells at several points in the lower country and subsequently held interests in the Northern field. Possessed of a vast fund of humor, and excelling in mimicry, his companionship was sought and his presence welcomed by numerous admirers. His tragical death brought deep sorrow to many hearts. Mr. Westervelt was born in New York City and was about 40 years of age. His remains were taken to Passaic Bridge, N. J., for interment.

FULLERTON PARKER.—Died Wednesday, December 26th, 1883, at Parker's Landing, in the 76th year of his age. In the early days he was engaged in lumbering and merchandising, and was the founder of the famous oil town of Parker's Landing. He was at one time in the coal and iron industry and subsequently a large owner of oil property. Mr. Parker was a noble specimen of manhood, and in many ways left his impress upon a community that will long mourn his death and revere his memory.

THOMAS L. KANE was born in Philadelphia in 1823 and died in the city of his birth December 26th, 1883. Of McKean county's share in the war for the Union it has been said "in proportion to its population more men volunteered and fewer were drafted, more went and fewer returned, than from any other county in the State." Among the first to volunteer was he whom we now briefly notice. He returned among the gallant few, but marred and scarred by wounds that bore him at last down to the grave. A braver knight never drew sword, a more fearless soldier never faced battle, than Colonel Kane, the commander of the famous Bucktails. He was made Brigadier for gallantry, and later Brevet Major General. Since the war he has been active in developing the resources of his adopted county and foremost in acts of benevolence and charity. He was for many years a leading member of the State Board of Charities, and was President of the company which erected the great Kinzua viaduct. Often impulsive and aggressive when he thought he was wronged, yet his natural disposition was all kindness and gentleness. Courtly manners and a genial spirit marked him as a true gentleman always, and a wide circle of friends will mourn his death.

DECEMBER PRODUCTION REPORT.

Reports have been received showing the amount of stocks at 6,195 Bradford wells on the 1st of January. A small proportion of these reported stocks for the 1st of January only, so that the comparison is made between 6,072 wells on the 1st of December and 6,095 wells on the 1st of January. The difference in the number of wells is made from purchases or the completion of new wells. The same persons who possessed 6,072 wells on the 1st of December had twenty-three more than this number on the 1st of January. The entire gross stocks at 6,072 Bradford wells were 404,101 barrels December 1st, an average per well of 66.6 barrels. At 6,095 wells the total stocks January 1st were 435,506 barrels, an average of 71 to the well.

Time.	No. Wells.	Gross Stocks.	Average per Well.
January 1, 1884	6,095	435,506	71.0
December 1, 1883	6,072	404,101	66.6
Difference	23	29,405	4.4

The number of wells in the Bradford field connected with the pipe lines on the 1st of January is estimated at 12,825. The above figures show an average increase in the stocks at wells of 4.4 barrels. If this average holds good for the entire number of wells in the field, the total stocks must have increased 56,430 barrels during the month of December. Or, in other words, there was an accumulation of stocks in the tanks of the producers of 56,430 barrels during the month, an average of 1,820 barrels a day. And this amount must be added to the pipe line runs to obtain an approximate estimate of the production of the Bradford field. The runs from both lines were 33,940 barrels per diem. Adding the increase in stocks, Bradford's daily production for December would be figured as follows:

Average Daily Pipe Line Runs	Barrels.
Daily Increase of Stocks at Wells	33,940
Bradford's December production, est	1,820
	35,760

THE BRADFORD FIELD.

	Barrels.
Estimated daily production for December	35,760
do do do November	35,026
do do do October	35,654
do do do September	34,965
do do do August	35,087
do do do July	34,530
do do do June	35,279

The above estimates have been derived from carefully compiled reports of stocks at wells, for the months named, and although absolute correctness is not claimed for them, they are sufficiently close to determine the fact that Bradford's daily production for the past seven months has been held very near 35,000 barrels.

The daily production of the Bradford field for the month of December, 1881, as shown by the

report of the Producers' Committee, was 62,365 barrels.

The torpedo men report a slight decline in the shooting of old wells in the Bradford field during December.

THE ALLEGANY FIELD.

Reports of stocks at wells received from the Allegany field are tabulated as follows:

Date.	No. Wells.	Gross Stocks.	Average per Well.
January 1, 1884	931	60,720	65.2
December 1, 1883	920	55,651	60.5
Increase per well			4.7

With 3,227 wells in the Allegany field on December 1st, and 3,320 on January 1st, the above results furnish the following figures:

Time.	No. Wells.	Average per Well.	Gross Stocks.
January 1, 1884	3,320	65.2	216,464
December 1, 1883	3,227	60.5	195,233
Daily average increase in stocks			21,231
			685

At this rate the total stocks in the field increased 21,231 barrels during the month, or 685 barrels per diem. The runs from both pipe lines were 11,752 barrels a day. Adding the increase in stocks makes the daily production of the Allegany field in December 12,437 barrels, a decrease of 241 barrels a day from the month preceding.

	Barrels.
Allegany's December production is estimated at	12,437
Allegany's November production is estimated at	12,678
Allegany's October production is estimated at	13,089
Allegany's September production is estimated at	12,335
Allegany's August production is estimated at	12,264
Allegany's July production is estimated at	12,345

FOREST, WARREN AND LOWER COUNTRY.

Reports were received from groups of wells in the different sections of Forest and Warren counties. The number of wells on the 1st of each month with their averages are tabulated as follows:

Field.	No. Wells.	No. Wells.	Average per Well.	Average per Well.
	Dec. 1.	Jan. 1.	Dec. 1.	Jan. 1.
Cherry Grove	52	52	109	114
Forest and Warren	132	140	212	198
Miscellaneous	149	149	41	41

The outside pipe line runs, *i. e.*, for all sections except Allegany and Bradford were 18,428 barrels. The outside runs taken for a number of consecutive months fairly represent the production. Assuming that the outside runs indicate the production, an estimate on the output of the region for December would sum up as follows:

Field.	Barrels.
Bradford	35,760
Allegany	12,437
Outside	18,428
Estimated daily average of region for December	66,625

THE NOVEMBER PRODUCTION.

Field	Barrels.
Bradford	35,026
Allegany	12,678
Outside	18,433
Estimated daily average of region for November	66,137

